

A Medical Survey  
OF THE  
BITUMINOUS-COAL  
INDUSTRY



A Medical Survey  
OF THE  
BITUMINOUS-COAL  
INDUSTRY

Report of the Coal Mines  
Administration



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Washington 1947

UNITED STATES  
DEPARTMENT OF THE INTERIOR

J. A. KRUG, *Secretary*

COAL MINES ADMINISTRATION

CAPT. N. H. COLLINGS, U. S. N. R.

*Administrator*

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# Letters of Transmittal

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
COAL MINES ADMINISTRATION  
WASHINGTON 25, D. C.

The Honorable J. A. Krug  
Secretary of the Interior  
Washington 25, D. C.

17 March 1947

Dear Mr. Secretary:

I have the honor to transmit herewith through the Coal Mines Administrator, Capt. N. H. Collisson, USNR, the report of the survey and study of the hospital and medical facilities, medical treatment, and sanitary and housing conditions in the bituminous-coal-mining areas of the United States, made pursuant to section 5 of the agreement of May 29, 1946, between you, Sir, as the then Coal Mines Administrator, and the President of the United Mine Workers of America.

This survey and study was conducted under my immediate direction by the members of a group of officers and enlisted men of the United States Navy assisted by certain civilian technical advisors. It has been a high honor and unusual privilege for each of us to have been given an opportunity to serve his country in this unique undertaking. It has been a very difficult and exacting assignment. The importance of our report has required stern self-discipline and a determined insistence that it be factual. We submit it, while with a consciousness of its imperfection, with an awareness that it is an impartial presentation and in the sincere hope that it will contribute to higher health standards in at least a sizable segment of the American populace.

As the Director of the Medical Survey, I am deeply appreciative for the assistance rendered by each of my associates, by Admiral Ben Moreell, CEC, U. S. Navy, retired, and by Capt. N. H. Collisson, USNR, who, as Coal Mines Administrators, always have been gracious and generous with their advice and encouragement. To you, Mr. Secretary, and to your many associates in the Department of the Interior, who have given us of their time and wisdom, I am profoundly grateful.

With high esteem, I am

Very respectfully,

(Sgd.) JOEL T. BOONE  
Rear Admiral. (MC), U. S. Navy  
Director, Medical Survey Group

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
COAL MINES ADMINISTRATION  
WASHINGTON 25, D. C.

Dear Mr. Secretary:

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I forward herewith the report of the survey and study of the hospital and medical facilities, medical treatment, and sanitary and housing conditions in the bituminous-coal-mining areas made pursuant to Section 5 of the Agreement of May 29, 1946, between the then Coal Mines Administrator and the United Mine Workers of America.

Respectfully,

The Honorable J. A. Krug  
Secretary of the Interior  
Washington 25, D. C.

(Sgd.) N. H. COLLISSON  
Captain, USNR  
Coal Mines Administrator

Encl.



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## Foreword

As far as can be determined, the Report herewith submitted is unique in that it represents the first Nation-wide medical survey of an industry conducted under Government auspices. It would seem providential that the coal industry should have received this initial attention, since coal mining is a basic industry of the Nation. Obviously, it is the sincere desire of those who have conducted the Survey that any benefit accruing to the coal industry as a result of their labors will benefit other industries. Throughout the period of study, investigation, and analysis, there has been an awareness that the health of the people of the United States is unnecessarily deficient, and that, through a survey of the coal industry, there were presented opportunities to contribute to the elevation of the health standards of the Nation as a whole.

The Director of the Survey and his associates were conscious that the contentions of substandards of health in the coal industry were not applicable to that industry only. Their assigned mission, however, was specific, and they therefore confined their investigations to that industry alone, although several other industries were visited for purposes of comparison.

Any assertions which may have been made that inferior standards are general in the coal industry are disputed by the Survey. Definitely low standards of health are readily apparent in certain places, but not in all areas where coal is mined. Provisions for health range from excellent, on a par with America's most progressive communities, to very poor, their tolerance a disgrace to a nation to which the world looks for pattern and guidance.

The Constitution of the World Health Organization enunciates that "Health is a state of complete physical and social well-being and not merely the absence of a disease or an infirmity." Health, indisputably the greatest asset of a nation, as well as of an individual, has not been adequately conserved nor protected in America. As a consequence of profligacy in matters of health, national productivity is curtailed, and the welfare and the safety of the Nation are jeopardized. Clearly, such inadequate attention to health applies equally as well to an industry, particularly such a basic industry as coal mining.

In appraising health standards, emotional well-being and physical well-being must be evaluated conjointly. The factors that bear directly on health are many, not the least of which are factors of environment. The Survey encompassed medical services and facilities, housing, and sanitation, and it properly embraced recreation of, and the use of leisure time by, the miner and his family.

To conduct the last-mentioned phase of the investigations, officers of the Navy designated as "welfare and recreation specialists" were assigned to the Survey field teams. Unfortunately, the word "welfare" connotes ambiguity. It needs specific definition and restrictiveness of application. Article 4 of the Krug-Lewis Agreement, providing for a Health and Welfare Program for the miner and his dependents, might readily have implied the re-

quirement for a study by the Medical Survey Group of all "welfare" measures. If so, in the absence of limiting definition of the application of the word "welfare," it would have ensnared the Survey investigators in a maze of imponderables and uncertainties and individual interpretations of the word. Consequently, the scope of the duties of the welfare and recreation specialists was restricted, and their investigations were limited to a few important observable factors.

As soon as selected and assigned to his new position, the Director of the Medical Survey, being a physician, foresaw that the Survey could well be approached in the familiar professional manner. A few days after assuming his new duties, he set forth in response to a summons, as it were, to see a sick family. At that time there was no unanimity of opinion that anyone was ill. The Director did not have to travel far from Washington to find patients, some of whom were seriously ill, but did not find the entire family sick. Figuratively, the Director sat down, in each case, at the patient's bedside, became acquainted with him, his household, and his neighbors, and began his examination. It was recognized early that the illness, although serious, was not an acute illness requiring heroic measures. There was no disaster-relief problem existent in any mining community visited. The malady was chronic, and one wherein careful diagnostic study was indicated. There was a conspicuous emotional factor, believed to have been caused by age-old conflicts between a wedded couple—Management and Labor. This emotional factor was a basic cause of the manifested chronic illness.

The multiplicity of symptoms presents a problem with limitless ramifications, which necessitates painstaking and prolonged diagnostic investigation and deduction before the curative therapy or remedy can be correctly determined and applied.

The Medical Survey of the Coal Industry, which was brought into being as a volunteered service of the Government, presupposes that its usefulness will not be limited to the period of the Government operation of the mines, or only while the Krug-Lewis Agreement remains in force. However, the terms of that agreement, which also provides for (a) a welfare and retirement fund and (b) a medical care and hospitalization fund, have provided the basic guidance for the Medical Survey.

The serious obligations placed upon the Director of the Survey and his associates demanded that the investigations be conducted as impartially as humanly possible. No member of the Survey Group held bias or preconceived ideas about the coal industry when assuming his new duties. Throughout the period of the Survey and while the professional groups (the medical, engineering, and welfare and recreational officers) were preparing the Report, there has been strict conscientiousness in recording only factual information, and upon it alone to reach conclusions. The varying relationships between Government, Management, and Labor while the Survey was being made and the Report prepared have not influenced the deductions presented. Although various styles of writing appear in the Report, it is believed that no personal prejudices have affected the conclusions. Such objectivity was attained through the stern self-discipline of public servants, impressed with the gravity of the mission to which they were assigned.

The investigations which are reported herewith should not be considered completed with the termination of the Survey. The Survey could have been continued for several years. It was conducted over a short period of time and cannot, therefore, be interpreted other than as an index of conditions. A prescription has been written for the relief of symptoms, but no attempt has been made to prescribe an over-all curative remedy in advance of a thorough and detailed diagnosis of the symptom-complex. The Survey was

concluded and the Report initiated as soon as immediate helpful remedies were discernible. The Survey has accomplished enough to indicate what symptoms can be prescribed for, even before a complete diagnosis has been consummated. In order that those who mine the Nation's prime national resource may produce maximum supplies under healthful living conditions and be assured of a high degree of health, further investigations and research by other Government or private agencies are needed. Such studies, together with corrective measures, are required in order to cure the illnesses and ameliorate the disabilities of the coal-mining industry.

It has been evident to the members of the Medical Survey Group that industrial health has not received the required attention, nor kept pace with scientific industrial mechanization. Until the human element, which is of prime importance to the fullest utilization of the machine, is comparably brought to maximum strength and vitality and responsiveness, industrial mechanization cannot be developed to its full potential. In a short-sighted rush of speed to create and develop machines in the interest of wealth and greater comfort, the health of the people who operate those machines has been neglected or given too limited attention. With the advancement of mechanization, obviously there is a greater exaction on physical well-being and mental acuity. Health is not only man's most valuable possession but a necessary requisite to the progress of a mechanized age.

The Survey has revealed convincing evidence that joint leadership is obligatory if industrial hygiene and industrial medicine are to be effectively applied, and if higher standards of living for the miner and his family are to be attained. Leadership is not confined to Management; there is need for its application by Labor representatives. The present situation, which brought about the Medical Survey of the Coal Industry, would not have occurred had a sense of joint responsibility existed. Management has demonstrated, in some instances, a high degree of leadership in providing medical care. There is little evidence of corresponding Labor leadership in health matters. Leadership in the ranks of Labor is more evident in other union activities. Groups of both Management and Labor have skill to learn that with authority comes responsibility.

The medical profession faces an opportunity of challenging proportions. Its responsiveness is dependent upon its perception of the opportunity before it and upon its sense of responsibility in taking every action to make medical service and its benefits available to each individual. There is evidence that organized medicine is desirous of measuring up to the challenge. Management and Labor, it is believed, can find an interested and ambitious ally in the medical profession, willingly ready to work as a partner in the enterprise of improved medical facilities and high health standards in the coal industry. It must be recognized that preventive medicine has not progressed nor advanced with curative medicine. The profession as a whole has lagged woefully in its interest in preventive medicine. This fact has been impressively revealed by the Survey of coal-mining areas.

The conclusions that were evolved from the factual information obtained by the Medical Survey Group point, unfortunately, to many serious deficiencies in the lives of the people employed in bituminous-coal mining. That these deficiencies are sufficiently serious and sufficiently widespread to merit the need for reforms is the composite opinion of all persons associated in the Survey. The adverse conditions reported with respect to some places are familiar to numbers of people, since they have existed for some time; but time continues to aggravate and augment the gravity of the situation, making corrective action more imperative than ever before.

The Director of the Medical Survey and his associates are mindful of the valuable

assistance rendered during the course of the investigations by many Federal and State officials, by representatives of Management, organized Labor, and organized medicine, and by other civilian organizations, as well as by numerous individuals. The spirit of cooperation evinced by all of these groups and individuals merits the deepest gratitude.

The Report of the Medical Survey of the Bituminous Coal Industry presents convincing evidence that the serious problem of improving the health of the miner, assuring him of better living conditions, enabling him to provide for his family through his own initiative and efforts, and making him a more responsive and responsible citizen of his community is a solvable problem IF Labor, Management, and the medical profession cooperate and work conjointly with a united interest and sincere devotion to a common cause—the good of large numbers of people and a basic industry. Health is a common concern of all groups. Working together for its promotion can help immeasurably to weld the bonds of human interrelationship.

JOEL T. BOONE,  
*Rear Admiral (MC) U. S. Navy,*  
*Director of Medical Survey.*

## Preface

The coal-mining industry of the United States was an infant in the late eighteenth century, grew quietly and inconspicuously into childhood in the nineteenth century, quickly passed into adolescence at the approach of the twentieth century, and has since remained in that stage of its existence. Profligate, overdeveloped, and alternately robust and depressed by the afflictions of bitter competition, the industry has been both a good provider and a problem child of the American economy.

The indispensability of coal to public health, public safety, and the national economic and military security has been stressed time and again. Despite the inroads of competing sources of energy, coal still supplies the fuel necessary to heat more than half of all of the homes and apartments throughout the Nation. It drives 9 out of 10 railway locomotives. It is the source of energy for more than half of the electric power produced. It furnishes the coke for every ton of steel made in the country. It is the source of chemicals essential to the manufacture of many paints, drugs, plastics, insecticides, perfumes, rubber goods, explosives, and other chemical compounds and products. It comprises more than one-quarter of all the freight carried by American railroads and pays more than 10 percent of their gross revenue. Coal mining provides a livelihood for hundreds of thousands of individuals who, with their dependents, constitute a large segment of the American population.

The rapid and widespread development of the coal industry in the United States is due to the favorable bounty of nature, as well as to the tremendous industrial expansion of the Nation and other economic factors. The coal reserves of the United States are most extensive and plentiful. Geologists have estimated that reserves of bituminous coal alone exceed 2,000 billion tons. The reserves, however, are not equally distributed. One great forma-

tion of bituminous coal lies along the Appalachian Range, another in the Central States on both sides of the Mississippi River, and a third large area of reserves in the West, in the Rocky Mountain region. Some of the coal reserves occur at great depths, but large quantities are close to the surface, where it is both economically and technologically feasible to mine them with present equipment and methods.

In the places where coal was deposited by nature, the topography of the land varies. In the Appalachian region, the earth's surface is irregular, ranging from the high, steeply pitched hills of southern West Virginia to the gentle slopes of eastern Ohio. In the Central States, the land generally is broad and flat, except in some sections where stream erosion has resulted in low, rolling hills, although in Arkansas and Oklahoma the topography is hilly where the coal lies under or close to the Ozark and Ouachita Mountains. In the Rocky Mountain region, the topography is rough and mountainous.

The quality and characteristics of the coal, the geologic conditions (such as the thickness of the seam, the extent of the deposit, the pitch of the formation, and the nature of the cover) that determine the amenability of a particular deposit to mining, and the accessibility or proximity of mines to markets, all have been factors in determining the deposits to be mined. Thus, although bituminous coal is now mined in 32 States (and in Alaska), production is commercially significant in only 22, as the other 10 produce less than 1 percent of the total annual output. Two States, Pennsylvania and West Virginia, mine almost half of the total. The States in the Appalachian Range from Pennsylvania to Alabama (see map I) contribute more than 70 percent of the output of bituminous coal and include almost 80 percent of the number of men employed.<sup>1</sup> Illinois, Indiana, Iowa, and Michigan and the western

<sup>1</sup> Based on production and employment figures for 1945.

part of Kentucky rank second, account for more than 20 percent of the production, and furnish about 14 percent of the employment. Arkansas, Kansas, Missouri, and Oklahoma and all of the Western States, including Colorado, Montana, New Mexico, Utah, Washington, and Wyoming, account for the remaining percentages (about 7 percent of production and employment).

## Production, by States

The States, in order of their production of bituminous coal, according to data obtained from the Bureau of Mines, United States Department of the Interior, are as follows:

TABLE 1.—Estimated production of bituminous coal in 1940, by States<sup>1</sup>

State:	Production, in tons
West Virginia	140,088,000
Pennsylvania	123,628,000
Kentucky	65,666,000
Illinois	62,775,000
Ohio	32,713,000
Indiana	22,200,000
Virginia	16,848,000
Alabama	16,556,000
Wyoming	7,644,000
Tennessee	6,286,000
Utah	5,794,000
Colorado	5,668,000
Montana	3,780,000
Missouri	3,074,000
Oklahoma	2,556,000
Kansas	2,488,000
Maryland	2,028,000
Iowa	1,518,000
Arkansas	1,507,000
New Mexico	1,228,000
Washington	996,000
Michigan	118,000
Other States <sup>2</sup>	19,000
Total	525,878,000

<sup>1</sup> Table does not include Alaska (354,000 tons) or lignite production from any of the States.

<sup>2</sup> Arizona, California, Georgia, Idaho, Nevada, North Carolina, North Dakota, Oregon, South Dakota, and Texas.

Source: Advance estimates prepared before the close of the year by Bureau of Mines, U. S. Department of Interior.

One major characteristic of the coal industry is that, unlike manufacturing enterprises, the operator

is limited in his selection of sites. He has to go where the coal deposits are located. The coal deposits, especially during the early days of coal mining, were remote from established settlements. In many instances, canals or railroads had to be built to them, so that the coal could be moved out. As recently as World War I, many rail lines had to be laid, particularly in the mountainous areas of the Southern Appalachians, and even today a new opening may require laying a spur track through a hollow or canyon; and housing has to be provided for the workers and their families.

When the country was still in its pioneer stages, camping near the mines was nothing unusual. Transience and mobility were part of the life of the period. Moving shanty towns followed the railroads as their tracks extended across the continent. Lumber camps kept moving as the accessible timber was cut out. Coal camps were born in that period of change and movement and had about them the feel and the name of impermanence. The country was rugged; many of the operators were speculators and investors, determined to make what they could out of a risky operation; the miners were individualists who were not afraid of anything, including the boss. If conditions did not suit the workers, they could take their picks and shovels and dig coal somewhere else. It was a business that from the beginning was full of chance and conflict.

The main difference between the coal camps and the other camps was the permanence of the materials with which the men worked. The railroad camps and the pipeline camps died when their jobs were completed. The rough barracks of the lumber camps were left in the woods to rot, and others were built nearer the growing timber. Full-fledged towns that grew up around the great metal mines of the West were abandoned when the lodes ran out. But as coal deposits are more extensive and less easily exhausted, the coal camps stayed, eventually becoming established communities. Their relative prospects of permanence required that houses and other facilities be built more enduringly.

The difficulties encountered in opening a mine and constructing houses and other facilities for the workers in isolated areas and on unfavorable terrain may be visualized from the following excerpt of an



account<sup>2</sup> of the opening up of the Elkhorn district, Eastern Kentucky, as recently as 1921:

Jenkins and the other towns adjacent to it sprang up in a wilderness, yet at that time they were eighteen miles from the nearest railroad and situated in a dense forest broken only by a few clearings each with its solitary log cabin.

At first all materials, supplies, and machinery were hauled from Heller, the nearest point on the Chesapeake & Ohio R. R. Many delays due to bad roads made imperative other transportation arrangements. As a result, connections were completed from Norton, Va., on the Norfolk & Western R. R., by extending a narrow-gauge log tram between Glomorgan and Pound to a point half way up Pine Mountain on the Virginia side.

Here a freight terminal was established and the wagon haul shortened to four miles. To see twenty teams of oxen harnessed to a large boiler or other heavy equipment was no uncommon sight in those days. Over this route were hauled most of the materials used at the mine—fuel, machinery, and supplies of all kinds. In fact, everything from the pins and needles sold at the store to the heavy 100-hp. boilers required for the temporary power houses at the mines then being opened.

One of the first acts in construction was the erection of saw-mills and later of planing mills. Practically all the lumber used in construction was cut and prepared on the property. The manufactured lumber was placed in drying kilns and made up into material for the houses which were started shortly.

### *Character of Communities*

The restricted choice of location for coal mines has given rise to notable regional differences in the character of mining communities. In the Rocky Mountains, where the coal mines originally were located far from centers of population, coal camps early became permanent communities, but even there private automobiles and paved highways have encouraged miners to move away from camps. Some operators, to provide housing for their employees, recently have been building houses in, or close to, incorporated towns, rather than at the mines. In the Arkansas-Oklahoma area, the seasonal nature of the underground mining operations has resulted in virtual abandonment of the relatively few camps that existed at one time, the miners living principally on farms and in rural communities, as well as in incorporated towns. In the Midwestern States, like Illinois and Indiana, where level or rolling terrain and good roads make nearly all areas easily accessible, the miners have a selection of residence vir-

tually unrestricted by their site of work, and the coal camp does not exist. In many parts of the northern Appalachians and in some parts of the southern Appalachians, the establishment of numerous cities, towns, and other settlements resulting from the steady growth of industry, commerce, and population has minimized the historic necessity for company towns; in fact, a number of the larger operators in western Pennsylvania and other sections have for years been selling their company-owned houses to the individual miners or to real estate companies.

Thus, in some areas, time has altered the conditions and circumstances that made coal camps obligatory. A major influential change has been the growth of automobile transportation and good roads, particularly where the terrain is flat or rolling. This increased mobility, coupled either with the desire of the miners to live in incorporated towns or with the necessity of earning a living partly from the soil or in other industries, has virtually eliminated coal camps in these regions. In many other areas, where transportation and communication are very little better than in the days when a railroad track, or perhaps a horse trail or wagon road, was the sole means of escape or contact with other established settlements, coal-mine communities remain. In these areas, new company towns are being built as new deposits are opened for exploitation. In still other places, company towns never were constructed and are not being built today when new mines are opened.

The factors that compelled coal companies to construct houses for their personnel also obligated them to provide the miners with means of obtaining food, medical care, and other facilities and services in the isolated areas. Mostly out of need, but partly from paternalistic motives and occasionally because of avarice, the operators established company stores to sell groceries, clothing, and other items; obtained doctors; and otherwise attempted to establish the essentials of community life. The miners, of course, were expected to pay for the services and the use of the facilities and supplies that were provided them. The common method was by deducting, or "checking off," from their forthcoming wages the amounts they expended. How far back in the history of the United

<sup>2</sup> Brooks, A. F., *Building a Town for a Mountain Community, A Glimpse of Jenkins and Nearby Villages: Coal Age*, vol. 23, No. 14, Apr. 5, 1923.

States this practice goes no one knows, but it is interesting to find references to such practices in some of the earliest records about life in this country. A Scot, named James M'Killop, who had visited the United States in 1869, recorded<sup>3</sup> his observations of the Cumberland field of Maryland, in part, as follows:

The miners' pay in Maryland and in nearly all the country is by the calendar month—he receiving his money on some specified day from the 10th to the 15th following. The off-takes on his pay-bill in this State are one dollar for smith, one dollar for doctor, and one dollar for each child that he may have at the colliery school; in fact, a dollar is looked on with as much indifference, and is as easily spent, as a shilling would be at home. Nothing can be done without the mention of it. For drawing a tooth a dollar is charged, and sewing a button on a man's coat would cost a quarter of a dollar. The house-rent for masters' houses range from 2 to 5 dollars per month according to their conveniences.

### *Economic Conditions of Coal Industry*

The coal industry has been one of the most rapidly growing industries of the Nation. Before World

<sup>3</sup>From *Evening*, Howard N. The First Century and a Quarter of the American Coal Industry: Koppers Bldg., Pittsburgh, Pa., 1942 (privately printed).

War I, production almost doubled every decade. According to the Bureau of Mines,<sup>4</sup> production of bituminous coal (including lignite) in 1890 was 111 million tons; in 1900 it was 212 million tons; in 1910 it was 417 million tons. After that, production increased more slowly and eventually leveled. By 1918, production had reached its maximum up to that time, the bituminous output (including lignite) amounting to 580 million tons. Following World War I, the coal industry went into a depression; and all during the 1920's, while other industries and business in general were enjoying a period of prosperity, the coal industry was suffering. When the general depression came in the 1930's, the coal industry suffered an additional blow. Not until World War II, long after other industries had recovered from the depression, did the coal industry get back on its feet. The production of soft coal in 1941 was 514 million tons and in 1944 reached 620 million tons, the highest record for the industry. Since then production has again decreased, primarily because of work stoppages, and it is expected to adjust itself eventually to the postwar demand.

<sup>4</sup>See table 2.

TABLE 2.—*Growth of the bituminous-coal- and lignite-mining industry in the United States, 1890-1945*

Year	Production, net tons	Average number of men employed	Number of mines <sup>1</sup>	Average number of days worked	Average number of days lost on account of strike		Net tons per man per day	Percent of underground production		Percent of total production mined by stripmining
					Per man employed	Per man on strike		Cut by machine <sup>2</sup>	Mechanically loaded	
1890.....	111,302,522	192,204	( <sup>3</sup> )	226	( <sup>3</sup> )	( <sup>3</sup> )	2.56	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )
1891.....	117,901,238	205,805	( <sup>3</sup> )	225	( <sup>3</sup> )	( <sup>3</sup> )	2.57	3.3	( <sup>3</sup> )	( <sup>3</sup> )
1892.....	126,856,567	212,697	( <sup>3</sup> )	219	( <sup>3</sup> )	( <sup>3</sup> )	2.72	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )
1893.....	128,385,231	230,565	( <sup>3</sup> )	204	( <sup>3</sup> )	( <sup>3</sup> )	2.73	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )
1894.....	118,820,405	244,601	( <sup>3</sup> )	171	( <sup>3</sup> )	( <sup>3</sup> )	2.84	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )
1895.....	135,118,198	279,962	2,553	194	( <sup>3</sup> )	( <sup>3</sup> )	2.90	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )
1896.....	137,640,276	344,171	2,399	192	( <sup>3</sup> )	( <sup>3</sup> )	2.94	11.9	( <sup>3</sup> )	( <sup>3</sup> )
1897.....	147,617,519	247,817	2,454	190	( <sup>3</sup> )	( <sup>3</sup> )	3.04	15.3	( <sup>3</sup> )	( <sup>3</sup> )
1898.....	166,593,623	255,717	2,892	211	( <sup>3</sup> )	( <sup>3</sup> )	3.09	16.5	( <sup>3</sup> )	( <sup>3</sup> )
1899.....	193,323,187	271,027	3,245	234	8	40	3.05	23.7	( <sup>3</sup> )	( <sup>3</sup> )
1900.....	212,316,112	304,375	( <sup>3</sup> )	234	5	43	2.98	24.9	( <sup>3</sup> )	( <sup>3</sup> )
1901.....	225,828,149	340,235	( <sup>3</sup> )	225	2	35	2.94	25.6	( <sup>3</sup> )	( <sup>3</sup> )
1902.....	260,216,844	370,056	( <sup>3</sup> )	230	7	44	3.06	26.8	( <sup>3</sup> )	( <sup>3</sup> )
1903.....	282,749,348	415,777	( <sup>3</sup> )	225	5	28	3.02	27.6	( <sup>3</sup> )	( <sup>3</sup> )
1904.....	278,659,689	437,832	4,650	202	8	44	3.15	28.2	( <sup>3</sup> )	( <sup>3</sup> )
1905.....	315,062,781	463,629	5,060	211	7	23	3.24	32.8	( <sup>3</sup> )	( <sup>3</sup> )
1906.....	342,873,867	478,425	4,430	213	28	63	3.36	34.7	( <sup>3</sup> )	( <sup>3</sup> )

See footnotes at end of table

Year	Production, net tons	Average number of men employed	Number of mines	Average number of days worked	Average number of days lost on ac- count of strikes		Net tons per man per day	Percent of under- ground production		Percent of total production mined by strip mine
					Per man employed	Per man on strike		Cut by machine <sup>2</sup>	Mechani- cally loaded	
1907	394,759,112	513,253	4,550	254	1	14	3.29	35.1	(2)	(1)
1908	332,573,984	516,264	4,730	193	11	38	3.34	57.0	(2)	(2)
1909	379,744,257	543,152	5,775	209	1	29	3.34	57.5	(2)	(3)
1910	417,111,142	555,533	5,818	217	35	89	3.46	41.7	(2)	(1)
1911	403,907,089	549,775	5,887	211	2	27	3.50	43.9	(2)	(2)
1912	450,104,982	548,632	5,747	223	10	35	3.68	46.8	(2)	(2)
1913	478,455,247	571,882	5,776	232	4	36	3.61	50.7	(2)	(4)
1914	422,703,070	585,506	5,592	195	19	60	3.71	51.6	(2)	0.5
1915	442,624,426	557,456	5,502	205	4	61	3.91	57.3	(2)	.6
1916	502,519,682	561,102	5,726	230	4	26	3.90	56.9	(2)	.8
1917	551,790,563	603,145	6,939	243	4	17	3.77	56.1	(2)	1.0
1918	579,385,820	615,505	8,319	249	1	7	3.78	56.7	(2)	1.4
1919	465,860,058	621,998	8,994	197	25	57	3.84	60.0	(2)	1.2
1920	568,666,685	639,547	8,921	220	6	22	4.00	60.7	(2)	1.5
1921	415,921,950	665,754	8,058	149	5	25	4.20	66.4	(2)	1.2
1922	422,268,099	687,958	9,299	142	78	117	4.28	64.8	(2)	2.4
1923	564,564,662	704,793	9,331	179	5	20	4.47	68.5	0.7	2.1
1924	485,686,558	639,694	7,586	171	7	75	4.56	71.5	.7	2.8
1925	520,052,741	588,495	7,144	195	2	30	4.52	72.9	1.2	3.2
1926	575,566,985	591,647	7,177	215	1	24	4.50	73.8	1.5	3.0
1927	517,763,352	595,918	7,011	191	45	151	4.55	74.9	5.3	5.6
1928	500,744,970	522,150	6,450	203	8	84	4.73	76.9	4.5	4.0
1929	554,988,593	502,963	6,057	219	(2)	11	4.85	78.4	7.4	5.8
1930	467,526,298	493,202	5,891	187	2	45	5.06	81.0	10.5	4.5
1931	382,089,596	450,213	5,642	160	5	35	5.30	83.2	15.1	5.0
1932	304,709,872	406,580	5,427	149	19	120	5.22	84.1	22.5	6.5
1933	333,630,533	418,703	5,555	167	9	50	4.78	84.7	12.0	5.5
1934	359,368,022	458,011	6,258	178	3	15	4.40	84.1	12.2	5.8
1935	372,373,122	462,403	6,315	179	(2)	(4)	4.50	84.2	13.5	6.4
1936	439,087,905	477,204	6,577	199	(8)	21	4.62	84.8	16.8	6.4
1937	445,531,449	491,864	6,548	195	(8)	(3)	4.69	85.1	20.2	7.1
1938	548,544,764	441,334	5,777	162	1	13	4.89	87.3	26.7	8.7
1939	594,855,325	421,758	5,520	178	25	56	5.25	87.9	31.0	9.6
1940	460,771,500	439,075	6,324	202	1	8	5.19	88.4	35.4	9.4
1941	514,149,245	456,981	6,822	216	20	27	5.30	89.0	40.7	10.7
1942	582,692,957	461,091	6,972	246	1	7	5.12	89.7	45.2	11.5
1943	590,177,069	416,007	6,620	264	(2)	(3)	5.38	90.3	48.9	15.5
1944	619,576,240	393,547	6,928	278	(2)	(4)	5.67	90.5	52.6	16.7
1945	577,617,327	385,100	7,033	261	(2)	(2)	5.78	90.8	56.1	19.0

<sup>1</sup> Does not include mines producing less than 1,000 tons annually.

<sup>2</sup> Percentages for the years 1890 to 1913, inclusive, are of total production, as a separation of strip mine and underground production is not available for these years.

<sup>3</sup> Data not available.

<sup>4</sup> One-half day or less.

Source: Bureau of Mines, U. S. Department of Interior, Mineral Market Reports: M. M. S. 1468, Nov. 19, 1946.

A number of reasons have been offered by economists to explain the unstable conditions of the industry in the last quarter century. The first basic reason is excess of capacity, due in part to the relatively seasonal nature of the industry, which must be ready on short notice to meet heavy seasonal demands, and in part to the facts that the cost of opening a mine is relatively low and that new mines are constantly being opened, especially when general business conditions seem favorable or when a local market for the product develops. Overcapacity has plagued the industry throughout its recent history. Many mines have been opening and closing with such rapidity that it has been impossible to obtain an accurate record of the total number in any year. A second reason for the difficulties of the coal industry has been the sharp rivalry of oil, gas, and other competing fuels. A third reason has been improvements in fuel efficiency, whereby ever-decreasing quantities of coal have been required to produce the same heat or energy.

In addition to the severe competition that the industry must face from other fuels, it also suffers bitter competition within its own ranks. A contest for markets continues among individual producers, as in other industries; among different groups of operators, operating in different freight-rate zones; and among operators producing coal of different grade, size, and quality. The intense competition from within and without, in the face of changing economic conditions, has caused constant changes in the industry, new producers entering the field and others abandoning mines or going into bankruptcy.

The number of operating mines consequently varies considerably from year to year. The largest number from which production, employment, and other data have been gathered was 9,331 in 1923. This number had declined gradually until the beginning of World War II, then rose again to 7,033 in 1945. (These figures do not include all mines, as there are many very small mines<sup>5</sup> producing less than 1,000 tons of coal a year, such as the small "father-and-son" mines or other small mines (snowbirds) that operate for a very brief period during peak demand.) It is significant to note that about

45 percent of the mines produce only about 2 percent of the total output of coal (bituminous and lignite) each year. On the other hand, about 10 percent of the mines, each having a capacity of more than 200,000 tons annually, produce more than two-thirds of all the soft coal mined each year. A number of the larger mines are so-called "captive" mines; that is, their output is earmarked primarily for a particular consumer, usually the owner, as, for example, steel plants or railroads. The other mines compete in the open market with the thousands of small mines. Regardless of size, however, nearly all mines have a common problem in labor relations, and the majority, particularly those in the Appalachian States and in the western areas, have similar problems relating to housing and medical care of their employees and community maintenance.

The general unstable condition of the industry over a period of many years has affected the men employed in coal mining. According to data from the Bureau of Mines, the average number of men employed in bituminous-coal and lignite mining in 1890 was 192,000; in 1900, this number increased to 304,000; in 1910, it went to 555,000; in 1920, it reached 639,000; and the peak number was attained in 1923, when it rose to about 705,000 men.<sup>6</sup> From that date forward the average number of men decreased steadily until 1945, when it had receded to 383,000. Of course, other factors than the general business level of the industry have been bringing down the number of employees in recent years, the most important being the tremendous growth in the mechanization of mines.

Whereas, in World War I all of the bituminous coal produced underground was loaded by hand, by the end of World War II more than half of the underground production was loaded mechanically. Moreover, strip or surface mining increased from less than 1 percent in 1918 to approximately 20 percent of all bituminous-coal production by 1946. Mechanization also has inclined the industry to tend to employ younger men. The war, however, temporarily removed many of the younger men from the mines; and production figures make it apparent that the older men had quickly adapted themselves to the

<sup>5</sup> The Bureau of Mines, U. S. Department of Interior, reports 1,499 such mines for 1945, with a total combined production of 643,770 tons.

<sup>6</sup> These figures are for the average number of employed (see table 2). It must be assumed that the actual number of miners is higher, some being temporarily in the armed services, working in other occupations, disabled, or unemployed.

newer mechanical devices. Because of the fluctuations in the number of men employed, it is not possible to obtain a figure that gives specifically the number of men at any one time whose principal vocation may be specified as coal mining. For convenience, the rounded figure of 400,000 has been used generally in recent years.

### *Coal-Mine Accident Record*

Another major problem in the coal industry has been the hazardous nature of mining operations. Coal mining (including anthracite mining) has, over a period of years, had the highest severity rate of injuries of any major industry in the United States and, except for logging and heavy construction in some years, has had the highest frequency rate. Each year, accidents in bituminous mining kill 900 to 1,250 men and injure about 50 times that number. Although major explosions are spectacular and cause large losses of life at single times, they cause only a relatively small number of fatalities and injuries annually. Falls of coal and falls of rock or slate from the roof are the largest single causes of deaths and injuries year in and year out. In soft-coal mines, both strip and underground, during the 5-year period of 1941-45, there were, according to the Bureau of Mines, an average of 1,120 fatalities and 50,300 injuries a year, or 1.46 fatalities and 65.46 nonfatal injuries per million man-hours of worktime. Notable strides have been made in the past several years in improving the safety record in bituminous-coal mining.<sup>7</sup> Although increased mechanization has tended to make mining much more hazardous, the record of fatalities and injuries has been gradually lowered, owing primarily to improved application of medical science and to the efforts of the Federal Bureau of Mines and a number of the State mine-inspection services. Many mine operators themselves, particularly officials of the larger and more progressive mines, have done excellent jobs in furthering accident prevention and in providing medical care for industrial injuries.

Another pertinent characteristic of the coal indus-

try has been its long record of frequent and bitter disputes between miners and operators. Bloodshed and violence have marked many of these labor disputes. The "Ludlow Massacre," the "Herrin Massacre," and "Bloody Harlan" are names that are highly significant to the people associated with coal mining. Aside from widespread national strikes and regional strikes, there have been hundreds of local strikes in every year of the industry, each involving relatively small numbers of men. From 1900 to 1945, inclusive, the annual loss of man-days caused by strikes or dissensions has ranged from 233,000 (in 1938) to 73,497,000 (in 1922), an average of 7,317,000 a year during this period, according to Bureau of Mines reports. These figures look large but constitute a relatively small percentage of the total man-days lost from all causes, including illness, injuries, car shortages, break-downs in equipment, and lack of markets.

### *Labor-Management Relations*

Many of the major labor disturbances, particularly during the period before 1933, arose from, or were associated with, attempts to unionize the coal miners. The earliest known attempt to organize the miners in the coal fields on a large scale was made in Pennsylvania and Illinois in the middle of the last century. The first national union of mine workers was organized in January 1861 and was known as the American Miners Association. Because of internal dissensions and disastrous local strikes and because of unfavorable economic conditions in the period of readjustment following the Civil War, it gradually collapsed. Local unions, however, persisted, and in 1873 they formed the Miners National Association. Hardly had the organization gotten under way when it was hit by the panic of 1873 and went out of existence entirely 3 years later. However, the seeds of unionism were widely sown, and in 1885 the National Federation of Miners and Mine Laborers and the National Assembly of Miners of the Knights of Labor were organized. Eventually these two organizations amalgamated to form the United Mine Workers of America. This union, which represents the large majority of all coal miners throughout the United States today, encountered many difficulties in the intervening years. Its growth

<sup>7</sup> Fatality rates per million man-hours have sporadically decreased from a high of 2.15 in 1930 to a new low of 1.23 in 1945; injury rates per million man-hours have decreased more regularly from a high of 94.91 in 1930 (the earliest year for which such data are available) to a low of 62.66 in 1945, according to Bureau of Mines data.

in power and strength has been uneven and irregular. At times its membership grew, and at other times waned. In some States the union was very strong and in others alternately strong and weak. During the early 1900's its growth paced that of the industry. During and immediately after World War I, the strength of the United Mine Workers increased rapidly. Even many of the decidedly nonunion fields were unionized. In 1922 the failure of the union to reach an agreement with the operators led to widespread strikes, the outcome of which was the breaking of the strength of the union in several coal fields. In the northern fields, however, the union maintained its membership because it succeeded in raising wages. In 1924 its top officials signed an agreement maintaining the relatively high level of wages in the unionized field. But the operators, because of competition from the nonunionized field, rapidly lost tonnage, and many mines closed down, only to reopen later on a nonunion basis. By 1927 the solidarity of the union in the northern field was greatly weakened, except in a few coal areas of the West and the Midwest. The union continued to lose strength, and this loss was accelerated with the onset of the depression.

The encroachment of the nonunion southern areas upon the natural markets of the organized northern fields, the unwillingness of the miners' union to accept wage reductions in the organized fields, and the decline in the demand for coal occasioned by competition of other fuels, combined with the general effects of the depression, reduced the proportion of coal mined under union contract from over 70 percent in 1922 to about 15 percent in 1932.<sup>1</sup> It was during this period (1927) that the rival miners' union, the Progressive Mine Workers of America, was formed.

In 1933, however, upon inauguration of the National Industrial Recovery Act, which endorsed and strengthened collective bargaining, and even in anticipation of the adoption of the act—

A wave of Union organizations swept over the industry. Eventually close to 95 percent of the labor employed was working under collective bargaining agreements entered into between the representatives of organized labor and operators.<sup>2</sup>

<sup>1</sup> Berquist, F. P., and associates, *Economic Survey of the Bituminous-Coal Industry Under Free Competition and Coal Regulation*, National Recovery Administration, Industry Studies Section, Division of Review, March 1936.

<sup>2</sup> Work cited in footnote 1.

It is estimated that at present all but a minor percentage (less than 10 percent) of the miners in the bituminous-coal industry are members either of the United Mine Workers of America or of the smaller Progressive Mine Workers of America.

The primary aims of the unions have been to gain shorter working hours and higher rates of pay for their members. Little attention has been paid to improvement of living conditions and better sanitation in coal-mining communities and, until recently, more adequate medical care. However, in the matters of wages and hours, the unions have, over a period of years, won many successes. As recently as 1932 the normal schedule of work in the bituminous-coal industry was over 48 hours a week. Before the First World War, the workweek in the bituminous-coal industry was about 52 hours. In 1937, a 35-hour schedule was adopted, and this has since been maintained as the basic workweek. During the combat years of World War II and in the present period of reconversion, the basic workweek remained at 35 hours, but additional hours at overtime rates of pay were agreed upon between the unions and the operators to overcome the shortage of manpower and to meet the emergency requirements of industry. Under the Krug-Lewis Agreement of May 29, 1946, for the period of operation of the mines by the United States Government the basic workweek was maintained at 35 hours, but 2 hours additional were allowed each day at premium pay, making a total of 9 hours a day portal-to-portal. In addition, an extra optional period of 9 hours on the sixth day, at overtime rates of pay, was agreed upon. The hours actually worked (see table 3), however, have averaged considerably less than the maximum permitted under any of the contracts.

## *Wage Rates*

In wages, also, mine workers have been making notable advances over the years. Relatively large gains were made after 1933, following the establishment of the National Recovery Administration. As a result of an agreement with the union in 1934, covering the Appalachian fields, the same contract that reduced the weekly hours from 40 to 35 increased basic wage rates for inside skilled workers to

TABLE 3.—Average hourly and weekly earnings and average weekly hours of employees in selected industries, 1939-46

Year	Bituminous mining			Metal mining			Quarrying and non-metal mining			Text and stone and other products			Automobiles			Lumber and other products		
	Average weekly earnings			Average weekly earnings			Average weekly earnings			Average weekly earnings			Average weekly earnings			Average weekly earnings		
	Dollars	Dollars	Hours	Dollars	Dollars	Hours	Dollars	Dollars	Hours	Dollars	Dollars	Hours	Dollars	Dollars	Hours	Dollars	Dollars	Hours
1939.....	23.88	0.887	27.1	28.93	0.708	40.9	21.61	0.55	39.2	27.52	0.799	37.2	32.91	0.629	35.4	19.06	0.489	39.0
1940.....	24.71	.883	29.1	30.34	.730	41.4	22.33	.68	39.3	29.11	.785	38.6	35.76	.648	37.7	19.69	.511	38.6
1941.....	30.86	.903	31.1	35.34	.797	41.7	26.25	.628	41.5	34.66	.833	41.6	41.25	1.042	39.6	22.22	.539	39.7
1942.....	35.02	1.059	32.9	38.72	.889	43.6	31.34	.717	43.7	40.96	.939	43.6	51.98	1.109	44.4	26.47	.648	40.8
1943.....	41.38	1.139	36.6	43.27	.976	44.3	36.23	.789	46.0	47.76	1.033	46.2	56.94	1.234	46.2	31.73	.736	43.1
1944.....	51.27	1.186	43.4	44.35	1.007	44.2	39.59	.886	46.3	50.63	1.082	46.8	57.87	1.27	45.5	34.19	.791	43.2
1945.....	52.25	1.34	42.3	45.36	1.042	44.0	41.76	.886	46.6	49.10	1.10	44.6	51.99	1.286	41.3	33.80	.805	42.0
First quarter 1946 <sup>1</sup> .....	56.61	1.266	44.9	41.56	1.065	38.9	41.08	.922	44.6	41.71	1.116	40.1	45.33	1.245	36.5	33.52	.538	40.0
Second quarter 1946 <sup>1</sup> .....	42.64	1.352	31.8	46.16	1.134	40.7	44.03	.972	45.3	46.52	1.164	48.97	1.224	1.224	37.0	36.32	.881	41.2
Third quarter 1946 <sup>1</sup> .....	58.55	1.468	39.9	48.93	1.213	40.3	46.81	1.02	46.0	46.63	1.227	39.4	52.55	1.363	38.6	37.72	.925	40.7

<sup>1</sup> Figures for three quarters of 1946 computed on basis of published monthly data.

Source: Bureau of Labor Statistics, U. S. Department of Labor.

\$5.00 in the North and to \$4.00 in the South. Men working on a tonnage (or piecework) basis were given corresponding increases. In 1935, these rates were increased by 50 cents a day, and again in 1937 they were increased by 50 cents a day. According to the Bureau of Labor Statistics,<sup>10</sup>

The agreement of April 1937 extended to March 31, 1941, and covered a part of the crucial period of preparation for national defense. The agreement retained the 35-hour week of 5 days and 7 hours per day, which had been adopted in 1934 in mines employing almost three-fourths of the workers and which had been extended in 1935 to about 98 percent of the workers. The agreement for the Northern Appalachian areas provided for an increase of 50 cents per day, from \$5.20 to \$6.00 (or from 78.6 to 85.7 cents per hour). The corresponding increase of 50 cents in the Southern Appalachian districts was from \$5.10 to \$5.60 per day (or from 72.9 to 80.0 cents per hour). The agreement provided for equivalent increases for other groups, including the piece rates of tonnage workers. Outside of the Appalachian territories, regional differences were recognized, depending on such conditions as the nature of the coal seams, customary arrangements, and in some instances the economic status of mines. The 1937 agreement introduced premium pay for overtime at time and one-half.

Again, in 1941, wages were increased in the coal fields, this time to \$7.00 a day for basic inside day labor, with corresponding increases for tonnage men and outside laborers. In the Northern Appalachian areas (Pennsylvania, Ohio, northern West Virginia, and western Maryland) and in Michigan, the increase was \$1 a day (or 14.3 cents an hour) for basic day occupations, and in the Southern Appalachians (southern West Virginia, Virginia, eastern Kentucky, and northern Tennessee) of \$1.40 a day or 20 cents an hour, thus eliminating the differential between northern and southern rates. For the two areas, affecting about 300,000 workers, the increases averaged about 18 percent. Other differentials in pay also were eliminated or minimized; and in that same year the union shop was extended to Harlan County, Ky., and the closed shop was recognized in the captive mines, which employ about 50,000 workers and produce about 10 percent of the coal.

The latest wage raise was granted in the Krug-Lewis Agreement of May 29, 1946, which provided for a basic hourly increase of 18.5 cents that, with full daily overtime, meant a daily increase of \$1.85.

<sup>10</sup> Bureau of Labor Statistics, U. S. Department of Labor, *The Changing Status of Bituminous-Coal Miners*: Bull. 882, August 1946.

## *Hourly and Weekly Earnings*

Wage rates, important as they are to the miners and operators, have less meaning than actual earnings. A man earning a basic rate of \$1.00 an hour and working 25 hours a week obviously has less money for living expenses than the man earning 80 cents an hour and working 40 to 50 hours a week. Because actual earnings are more significant, the Bureau of Labor Statistics has been making canvasses to estimate the average hourly and weekly earnings of industrial workers. The averages for bituminous coal miners are only approximations. They are based on data obtained from the pay rolls and other records of a large number of bituminous-coal-mining companies throughout the United States, including mines operating as nonunion as well as under agreements with the United Mine Workers or the Progressive Mine Workers. The data, however, do not cover all occupations in the mines but those that are numerically important and would be indicative of earnings throughout the industry at various skill levels. Like all averages, they do not reveal how many people earn more or how many earn less than the figures given.

Average hourly earnings of bituminous-coal miners, according to the Bureau, were 85 cents in 1923, when the effects of World War I were still felt and the depression in the coal industry had not yet set in. By 1929, at a time when the hourly earnings of factory workers increased about 10 percent, the hourly earnings of miners had dropped to 68 cents, a decrease of about 20 percent. Then in 1933 they declined to 50 cents. After 1933, hourly earnings, including pay for overtime when worked, began to rise, going to 79 cents in 1936, to 88 cents in 1940, to 99 cents in 1941, to \$1.05 in 1942, to \$1.13 in 1943, to \$1.18 in 1944, and to \$1.24 in 1945 and reached an average of \$1.37 for the first 9 months of 1946.

Table 3, which gives the average hourly and weekly earnings of bituminous-coal miners, compiled from figures obtained from the Bureau of Labor Statistics, also presents comparative data for other industries, although it is realized that many factors tend to make such comparisons meaningless. It should be borne in mind that important differences



between the various industries include: (1) The opportunities for regular employment, (2) the skill and responsibilities required to do the work, (3) the proportion of males to females, (4) the proportion of skilled to semiskilled or unskilled labor, (5) the amount of overtime worked, and (6) the hazards involved.

### *Miners' Yearly Earnings*

Just as hourly and weekly *earnings* are more meaningful than hourly wage *rates*, so are yearly earnings more meaningful than hourly or weekly earnings. The miner must feed, clothe, and shelter himself and his family throughout the year, and his ability to do so depends upon how much he can earn all year, for year after year. Upon the size and regularity of his annual income depends his ability to pay for adequate medical care, to buy his own home, or to rent decent housing, even at higher rates, and to take full advantage of the limited recreational outlets. If one were to assume that each coal miner in an underground basic day occupation worked the full 54 hours a week, including overtime (or the equivalent of 63.5 hours at straight time) provided for in the current Krug-Lewis Agreement, at the rate of \$1.185 an hour, or at the rate of \$75.25 a week, for 46 of the 52 weeks in the year, his annual gross earnings should average \$3,461.50. The resultant, however, is a highly theoretical, in fact fanciful, figure. Only once in the history of mining has the average number of days a year worked by miners been as high as 276 days, which is the equivalent of 46 6-day (54-hour) weeks. The average number of days worked in all mines (see table 2) has ranged from a high of 278 days in 1944, a war year, to a low of 142 days in 1922. Individual mines vary in the number of days they operate. They may shut down for a period of time because of strikes, lack of markets, shortages of railroad cars, serious accidents (such as fires) and break-downs in equipment or for financial troubles and for other reasons. In general, however, the larger the mine, the steadier its operations. Over the past 56 years, or since 1890, which is as far back as the records of the Bureau of Mines go, the work-year at all soft-coal mines has averaged only 206 days. In any one year, as, for example, 1940, when the average number of days for all mine operations

was 202, some miners may have worked as much as 280 days or more, while others may have worked as little as 120 days or less. Furthermore, even during the war, when the demand for coal was abnormally high, many miners had little opportunity to work the average number of hours and days or on Saturdays (sixth day of the week) to earn the overtime pay for those days.

Of all the figures collected by statisticians and others over the years, none seem to be as resistant to interpretation or as difficult to understand as those assembled on miners' earnings. Comprehensive data on which the average annual earnings of individual bituminous-coal miners can be computed accurately have never been gathered, and even the best-qualified experts have been defied in obtaining single figures that can be presented without lengthy qualifications and without explanations that tend to confuse rather than clarify the meaning to the average reader. No single figures mean what they seem to say. There are a number of justifiable reasons for this. First, there are many different occupations, at different rates of pay, embraced in the term "bituminous-coal miner." Second, the different occupations work different lengths of time, and there are differences in the working times at various mines and in the several coal districts. Third, there are differences between the pay rates of miners who work on a tonnage or piecework basis and those who work on a daily rate of pay. Also, there are men who regularly work a sixth or overtime day, while others never work on the sixth day; still others work overtime only during certain periods of the year. Finally, there are local variations in the rates of pay for certain occupations. All of these variables so complicate any attempts to obtain an accurate picture of annual earnings, which could be expressed in terms that can be readily understood, that no official figures are regularly published.

Some figures *indicative* of the annual earnings of miners are, however, presented in table 4. They were obtained by simple arithmetical computations of weekly earnings and are presented, not as actualities, but for their value in determining relative changes from year to year. For this purpose, figures also are given for related industries and certain other selected high-paid industries. The trend in miners'

incomes is shown as well in figures of earlier years, which indicate average annual earnings of \$1,251 in 1929, then a sharp drop each year until 1932, when the mines operated very few days and wage rates were relatively low. From a low of \$677 in 1932, average annual earnings rose gradually to \$1,141 in 1937, dropped again slightly in 1938, reached \$1,164 in 1939, and rose each year since to a high rate of \$2,650 in 1945.<sup>11</sup> It is important to bear in mind that these figures are mere indications of averages and do not reveal how many miners earned less and how many earned more than the amounts stated, nor do they show how high or how low the incomes of large groups of miners went in any particular year. Moreover, the figures are intended to represent gross earnings and consequently take no account of numerous deductions for items such as rent, company store, union dues, assessments, supplies, burial fund, and medical care. On the whole, the figures

for numerous reasons tend to underestimate the gross earnings.<sup>12</sup>

The relative opportunities to supplement income from other than the principal vocation constitute a substantial difference between miners and other industrial workers. In the Southwestern and Western States where many mines operate more or less regularly on a seasonal basis, many miners have opportunities—and have adjusted themselves accordingly—to occupy themselves as part-time farmers and farm laborers. In the northern fields, a large number of mines are within, or close to, localities with diversified industries, and some opportunities for work exist when mines are shut down. In the southern Appalachians, however, the mines are more isolated, and the areas are not so highly industrialized or conducive to large-scale farming; consequently, the miners depend almost solely upon operation of the mines for their livelihood. Workers in manufacturing industries, however, are generally located in areas that have a high degree of industrial diversification and consequently have opportunities for supplemental employment. Further, because of the location of manufacturing industries, wives and daughters of the workers have relatively much better chances of finding employment to supplement the family income than in mining, where in many instances no such opportunities exist.

Theoretically the miners' wages allow for the extra-hazardous nature of their occupations. Yet, evidence clearly indicates that their earnings generally do not permit sufficient reserves in savings, bonds, or personal insurance to compensate them in case of lengthy or permanent disability resulting from accidents or serious illnesses. Compensation laws in many States have been designed to take care of some of these contingencies. However, such benefits, together with other financial benefits (such as those under the Social Security Act), are claimed by the union to be insufficient. On the basis of this contention, the Krug-Lewis Agreement of May 29, 1946, between the United States Government and the United Mine Workers of America, contains a clause providing for a "welfare and retirement fund," which is being accumulated from a royalty on each ton of usable coal mined.

TABLE 4.—*Estimated average annual earnings of employees in selected industries.*

Year	Bituminous mining	Anthracite mining	Quarrying and non-metallic mining	Iron and steel and other products	Auto-motives	Lumber and timber products
1939	\$1,164	\$1,420	\$1,008	\$1,338	\$1,620	\$860
1940	1,212	1,488	1,070	1,444	1,775	897
1941	1,536	1,650	1,205	1,750	2,000	1,018
1942	1,736	1,931	1,440	2,000	2,140	1,205
1943	2,110	2,190	1,695	2,380	2,140	1,452
1944	2,040	2,250	1,640	2,520	2,190	1,572
1945	2,650	2,335	1,914	2,470	2,755	1,555
1946	2,465	2,307	2,043	2,295	2,508	1,654

<sup>1</sup> Rates of annual earnings based on data for last 9 months of the year.

NOTE.—Estimated average annual earnings were computed from data on pay rolls and average number of employees reported by employers of the various industries to the Bureau of Labor Statistics, U. S. Department of Labor. The method of computing was the same as that used in the report of the National War Labor Board entitled "Wages and Related Problems in the Bituminous Coal Industry," April 28, 1945, prepared under direction of Walter E. Fisher, associate professor, University of Pennsylvania.

<sup>11</sup> During the period from 1939 on, the cost of living also increased each year on September 1946 becoming 40 percent higher than in the base period 1913-19. The consumers' price index for moderate income families for large cities, which is prepared and issued by the U. S. Department of Labor, was for 1939, 99.4; 1940, 101.2; 1941, 108.2; 1942, 110.7; 1943, 123.6; 1944, 128.5; 1945, 126.3; and 1946, 139.3.

<sup>12</sup> For discussion of the limitations of figures on annual earnings and for additional data see National War Labor Board, Division of Wage Stabilization, Report on Wages and Related Problems in the Bituminous Coal Industry, Apr. 28, 1945; Bureau, *Ann., Earnings of Coal Miners and Drifts, Hearings II, Wages in the Coal Industry as Compared with Wages in Other Industries* Ann. Am. Acad. Pol. and Soc. Sci., (4-11), No. 36, January 1926.

## Ages of Coal Mines

A singular characteristic of the coal industry is the fact that male labor only is employed in mining. During the War, a few women were employed in surface occupations, but the miners have resented even this small encroachment. However, what is more distinguishing is the fact that the miners, who regard themselves as skilled craftsmen, have no established apprenticeship system. In the old days a miner took his son into the mine and trained him while he worked alongside, or young boys started in subsidiary occupations, such as trappers (to open and close ventilating doors underground when a trip or train of mine cars had to pass through) or as breaker boys picking slate in the tippie. Today, the vestiges of this system persist; but generally able-bodied young men, after a short period of training following their employment, quickly begin to receive the same rates of pay as men who have spent a lifetime in the same jobs.

It has been frequently stated that, with the con-

stantly increasing amount of mechanization in mines, the miner's job is a young man's job. During World War II, however, when many young men were in the armed services, and the proportion of older men in the mines was supposed to be higher, the largest tonnage of soft coal mined in any 4-year period, and the largest production of any single year (1944) were attained. Discounting strip mining, the highest productivity per man per day (5.04 tons) was achieved. In 1940, before the last war and consequently prior to the time when many young miners enlisted or were drafted into the armed services, or had left mining for the higher-paid wartime industries, almost 12 percent of all the men employed in the coal industry were over 54 years old. Almost 45 percent were between 35 and 55 years old; 29 percent were 25 to 35 years old; and only about 15 percent were under 25 years of age. In some highly productive States, such as Pennsylvania, Illinois, Ohio and Indiana, the men in the oldest age group, 55 years and over, constituted 12 to 23 percent of the total (see table 5).

TABLE 5.—Percent distribution, by age, for employed males 14 years old and over in the coal-mining industry, for the United States, by States, March 1940

Age	14 to 19 years	20 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 59 years	60 years and over
United States	2.7	12.5	28.8	24.1	20.1	6.3	5.5
Alabama	3.1	13.5	32.8	26.9	15.5	4.1	3.9
Arkansas	2.9	10.0	35.6	23.9	15.5	5.2	6.9
Colorado	2.1	10.6	25.8	23.5	24.0	7.9	6.1
Illinois	1.9	5.9	19.8	23.6	26.2	11.3	12.2
Indiana	1.0	5.9	21.0	28.5	25.9	9.5	8.3
Iowa	2.8	9.7	23.2	19.0	23.6	10.9	10.9
Kansas	2.2	7.4	22.1	21.2	24.2	11.3	11.7
Kentucky	4.1	14.5	33.5	26.7	14.8	3.7	2.8
Maryland	3.4	9.9	25.3	25.3	20.6	7.5	8.1
Michigan	1.7	7.2	16.6	14.4	28.0	15.0	18.0
Missouri	2.6	10.3	24.9	23.9	20.6	8.7	9.5
Montana	3.6	9.8	21.5	17.8	27.4	9.7	10.1
New Mexico	2.4	11.5	23.6	22.1	24.4	7.5	8.6
Ohio	3.0	15.2	26.9	19.9	20.7	8.3	8.0
Oklahoma	2.3	10.4	27.2	24.0	20.6	8.0	7.6
Pennsylvania	2.2	12.2	27.6	22.9	22.4	6.9	5.8
Tennessee	5.8	16.7	32.0	25.1	14.6	4.0	5.7
Utah	1.0	11.4	9.7	25.6	21.9	4.8	5.4
Virginia	5.9	17.3	35.4	24.4	15.6	2.8	2.5
Washington	1.3	11.1	22.2	18.0	37.2	10.3	11.0
West Virginia	5.0	13.0	31.6	25.8	17.4	4.6	3.6
Wyoming	2.4	12.6	26.7	20.1	28.4	7.6	7.8

Source: Bureau of the Census, Report on Population, 1940, 4-3-5.

The workers who constitute the laboring force in the industry are a varied class of men with heterogeneous backgrounds. They represent virtually all racial groups and fall into all age groups. Both Negro and white are included in their ranks. Estimates (based on accident figures) show that almost 9 percent of the miners are Negroes. The proportion of nonwhite varies, however, from State to State, with Alabama having the highest ratio (about half) and West Virginia the next highest, and some coal States having no Negro miners. The Negroes belong to the same labor unions as the white, receive the same rates of pay, and are as respected for their skills as any other group. No statistics have been collected on the racial make-up of the miners since the United States Coal Commission, in 1923, made a study based on data obtained in the 1920 Census. The study showed that in 1920 nearly 68 percent of the bituminous-coal miners were native-born (of which 8 percent were Negroes) and the remainder were of foreign birth, the largest numbers having been born in Italy, Austria, Poland, Czechoslovakia, and Russia. The highest proportion of foreign born worked in the Pennsylvania mines. It may be assumed safely that, immigration having been virtually cut off since then and the interval of a full generation having intervened, the proportion of native-born is much higher today among the miners of the United States than 25 years ago. Upon traveling through the bituminous-coal fields a visitor expecting marked racial differences would be struck by the thoroughness with which the groups that are not native-born have been assimilated. Occasionally, in certain parts of New Mexico and southern Colorado, one sees whole communities of people of Spanish-American descent; in New Mexico, a large number of the workers in a few mines are American Indians; in Utah, there are a few small coal camps made up of families of Japanese and those of Japanese descent; and in places in Wyoming, such as Rock Springs, as many as 40 European racial stocks are said to be represented. In some Pennsylvania,

northern West Virginia, and Ohio mining towns, European tongues are still heard (occasionally on the streets and in the taverns. On the other hand, in many areas, particularly in Alabama, Tennessee, Virginia, and in large parts of Kentucky and southern West Virginia, the white populace seems to be composed almost entirely of native stock, descendants of the original Scotch-English who settled many generations ago in the Southern Appalachian hollows.

Where the miners are not obliged by circumstances to live in company towns or in unincorporated areas, they exercise the rights and responsibilities of citizenship to the same degree as other citizens. They vote (with the exception of the very few who, for various reasons, are ineligible) and are candidates for local, State, and national offices. They pay taxes, and they complain as much as their neighbors in other occupations do. However, in most of the company-owned villages where many must live, their interests outside of their work and their families are circumscribed. Long years of control and paternalism have almost completely atrophied their sense of responsibility as citizens. They have slipped into the easy status of social wards. But the virility and vitality of the group, particularly of the younger men and women, and more especially of the young sons and daughters of America's coal miners, resoundingly proclaim hope. The horizons of many young men and some of the young women from the coal fields have been broadened by wartime migrations. Service as officers and enlisted personnel (both men and women) in the Army, Navy, Marine Corps, and Coast Guard, where better precepts of personal hygiene and community living have been inculcated, has influenced their basic concepts and attitudes, which undoubtedly will extend into coal-mining communities. The experiences of this young group may eventually find expression. With their younger brothers and sisters they represent the best hope for higher standards of healthy living.



## Launching the Survey

The health and living conditions of the men, women, and children of America who depend directly for their sustenance and welfare upon the bituminous-coal-mining industry are matters of national concern. This key industry affects directly and in large measure the progress and prosperity of all American industry. Thus, although the miners and their families comprise, in total, only a small but widely distributed segment of the whole population of the United States, the indispensability of the commodity produced by their labor makes their well-being the object of public interest and not solely the concern of Labor or Management. Moreover, basic American principles of humanity and justice to individuals, and the inescapable interdependence of all Americans, project major issues dealing with the nonvocational life of the miners beyond the province of a labor dispute.

On May 29, 1946, the Federal Government, as a representative of all of the people of the United States, undertook to conduct a comprehensive survey of the medical care and hospitalization of miners and their families; and of the housing, sanitation and related conditions in coal-mining areas (after health standards became one of the matters at issue between the mine workers' union and the representatives of the mine operators, when they were attempting to draw up a labor contract).

The Survey with which this report deals was actually an outgrowth of the discussions arising from the negotiations for the contract between the Federal Government and the United Mine Workers of America. While the main drama of wages, hours and conditions of work, and residual benefits to miners was played on the center of the stage in this theater of controversy, the Survey was conceived in the wings. Nevertheless, it received a proportionate share of the spotlight of public attention.

The negotiations in 1946 for a new labor contract in the bituminous-coal-mining industry were begun a short time before March 31, when the then existing contract was due to expire. By April 1, when no new contract had been consummated, the miners refused to go to work, and coal production throughout the country virtually ceased. This period of suspension was maintained during the long interval while the officers of the United Mine Workers of America, representing the great majority of the organized miners, and the representatives of the majority of mine operators discussed and argued the terms of settlement. During that time a number of basic industries, such as steel and electric power, were threatened with paralysis, and the national economic structure was placed in jeopardy. The essential program of reconversion from war to peace had been arrested, and the danger of complete economic collapse seemed not far distant. Then, on May 12, the union policy committee authorized a "truce" of 2 weeks, and many of the workers returned to their jobs for this period, but it soon became apparent that no contract could be reached in that time.

Finally, on May 21, after work interruptions involving large numbers of miners had lasted over a period of 59 days, and after the representatives of the operators and of the organized workers had personally informed the President of the United States of their inability to come to an agreement, the President issued Executive Order 9728, authorizing and directing the Secretary of the Interior to take possession of the mines on behalf of the Federal Government. The Secretary, Hon. J. A. Krug, acting immediately, established within the United States Department of the Interior a Coal Mines Administration, an agency similar to the one of the same name that had been created in July 1943 to handle

a similar coal-production crisis. To assist him in the task of administering the operation of the coal mines, Secretary Krug, with the approval of the President and the Secretary of the Navy, selected Vice Admiral Ben Moreell<sup>1</sup> (CEC), U. S. Navy, as Deputy Coal Mines Administrator (later named Coal Mines Administrator).

Notices of Government seizure were immediately dispatched to the mining companies that had operated mines under labor agreements with the United Mine Workers of America; and the officials of these companies who had formerly been in charge of mine operations were designated operating managers of the same properties for the United States. For practical reasons, the Coal Mines Administration did not seize all of the 7,000 to 8,000 mines employing members of the United Mine Workers. A large number of these were small mines, including the so-called "truck mines," "wagon mines," "dog holes," or other small mines whose total combined annual production represented but a small fraction of the annual output of bituminous coal. Only the large strip mines and larger underground mines which produce more than 50 tons per day and which utilized rail and river connections—altogether comprising approximately 3,350 mines but producing about 90 percent of all the bituminous coal—were originally intended to be taken. Approximately 2,350 of these mines have been retained under Federal possession and control.

Following Government seizure of these mines, Secretary Krug, with the assistance of Admiral Moreell, negotiated, on behalf of the United States Government, a labor contract with Mr. John L. Lewis, President of the United Mine Workers, which was signed on May 29, 1946, at the White House in the presence of The President of the United States.

This contract, which became known as the Krug-Lewis Agreement, amended, for the period of the Government's custody of the bituminous-coal mines, the wage rates, hours of employment and other provisions contained in previous agreements between the union and the private operators and also in-

cluded new provisions relating to safety, health, and welfare. The survey of medical and sanitary facilities was one of these provisions. The Krug-Lewis Agreement states:

#### *5. Survey of Medical and Sanitary Facilities*

The Coal Mines Administrator undertakes to have made a comprehensive survey and study of the hospital and medical facilities, medical treatment, sanitary, and housing conditions in the coal mining areas. The purpose of this survey will be to determine the character and scope of improvements which should be made to provide the mine workers of the Nation with medical, housing and sanitary facilities conforming to recognized American standards.

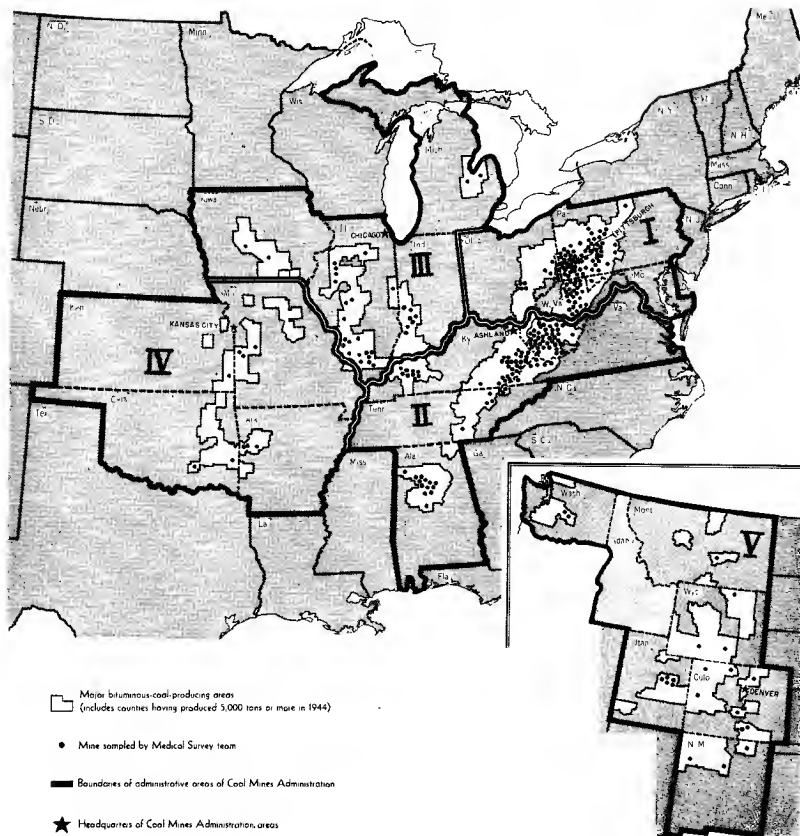
#### *Organization of Survey*

To organize and direct this Survey, the Secretary of the Interior, with the approval of the President, selected Rear Admiral Joel T. Boone, MC, United States Navy. A reasonable presumption why an officer of the Naval Medical Corps was selected was that Admiral Moreell, himself being a naval officer, quite naturally turned to fellow officers to assist him in the various subdivisions of administering the bituminous-coal industry when he was called to assume the position of Deputy Coal Mines Administrator. It facilitated his work to have the majority of his associates united by a bond of common procedures and a common language. Admiral Moreell well knew of the experience, the world over, that medical officers of the Navy have had in public health and preventive medicine. Naval medical officers must have experience in all the diversified fields of health. Frequently they have had to make foreign territory habitable for the armed forces of our country, that they might occupy it and carry out their military operations in varied climates and under various conditions; moreover, members of the Corps have also been serving in shipyards, gun factories, and similarly large industrial plants.

Incidentally, there was still another advantage in having a medical officer of the Navy direct the Survey, since the Naval Medical Corps had had no previous relationship with either Labor or Management in the coal industry; it had little, if any, first-hand contact in the coal fields and in no way had been associated with State health organizations or dealt with State legislatures. Therefore, the Navy's

<sup>1</sup> Vice Admiral Moreell became Admiral on June 11, 1946. He resigned as Coal Mines Administrator on October 1, 1946, concurrent with his retirement from the Navy, and was succeeded as Administrator by his deputy, Capt. W. H. Cullison, (S), USNR.

# DISTRIBUTION OF MINES SURVEYED



MAP 1



medical officers could approach the delicate problems involved in the Survey with a fresh viewpoint and uncommitted. It is believed— and there is substantial evidence to support the belief—that because of these factors public confidence was given and reposed in the Survey, which might not have been attained otherwise.

### *The Survey Staff*

The staff organized to conduct the Survey was essentially as follows:

1. A headquarters staff, consisting basically of advisers to the Director, included an engineer adviser, who became as well the executive officer of the Survey Group, while counseling and guiding on matters of housing in coal-mining communities and on problems of water supply, sewage disposal, and related sanitation matters; an adviser on medical care, epidemiology, and sanitation; an adviser on welfare and recreation; an adviser on public relations; and a documentary photographer to make a photographic record of observable conditions in coal-mining communities.

2. A field staff made up of five teams, each team comprising a medical officer in charge, an engineer officer, and a welfare and recreation officer, together with a chief yeoman who primarily performed clerical duties. Each of these teams was assigned to one of the five areas<sup>2</sup> that had been established by the Coal Mines Administration for administrative purposes. (See map 1.) The field teams, however, did not confine all their activities to their own designated areas. In Areas I and II, which had the highest concentration of mines and mining population, the assigned field teams remained in their respective areas throughout the Survey. However, in Areas III, IV, and V, which had fewer mines, the field teams, upon finishing their own investigations, came into Areas I and II to assist the other teams. For example, the field team in Area IV, upon completing its work, went into Area II and conducted inves-

tigations in Alabama, southern Tennessee, western Kentucky, and Virginia and in parts of southern West Virginia. The team from Area V, following completion of its investigations in that area, entered Area I and surveyed mines and mining communities in central Pennsylvania and Maryland. The team from Area III entered Area I and surveyed mines and mining communities in eastern Ohio.

Owing to the limitation in time, it was obviously impossible for the Medical Survey teams to investigate the factors selected for study in each of the 8,000 or more bituminous-coal mines of the Nation, or even in the 2,350 coal mines that were in Government possession. It became necessary, therefore, to conduct the Survey on a sampling basis. It was necessary, of course, that the sample to be selected should be representative; that is, it should be large enough and distributed widely enough so that conclusions could be drawn.

### *Sampling Procedure*

Inasmuch as people constituted the primary consideration, rather than structures, facilities and services in themselves, the sampling procedure was conducted on the basis of mine population. From the records of the Federal Bureau of Mines a list of all mines, giving their locations, production, and number of employees, was compiled. Mines producing less than 50,000 tons annually were deleted. The list then contained 1,849 mines, employing 328,500 workers and producing at the time at a rate of about 560,000,000 tons of coal a year. The Bureau of Mines previously had assigned index numbers to all active mines, and this system afforded a convenient device in selecting of the sample. To assure that the selection of the mines was a random one, this list was arranged numerically in accordance with the index numbers assigned by the Bureau of Mines. It was decided that approximately 15 percent of the total or 260 mines would suffice for the sample and would fit in with the time limitations. To assure an equitable and proportionate geographical distribution, the listed mines were then segregated according to production districts, such districts at one time having been set forth for pricing purposes by the Bituminous Coal Act of 1937. The number of

<sup>2</sup>Area I, with headquarters at Pittsburgh, Pa., comprised Pennsylvania, northern West Virginia, Ohio and Maryland; Area II, with headquarters at Ashland, Ky., comprised southern West Virginia, Kentucky, Virginia, Tennessee, and Alabama; Area III, with headquarters at Chicago, Ill., comprised Illinois, Indiana, Iowa, and Michigan; Area IV, with headquarters at Kansas City, Mo., comprised Arkansas, Kansas, Missouri, and Oklahoma; and Area V, with headquarters at Denver, Colo., comprised Colorado, Utah, New Mexico, Montana, Washington, Wyoming, and other Far Western States.

mines selected from each district was proportionate to the number of mine workers employed there. In other words, in those districts in which the population of miners was largest, the most mines were selected; and in those districts where the population of miners was the least, the smallest number of mines was selected for the sample. For each district there was determined the allotted number of mines to be selected at random. Thus, if 20 mines were assigned to a district which had 300 mines, every fifteenth mine was selected by the simple procedure of going down the list and picking out every fifteenth index number.

When the selections were completed, it was found that the 260 mines which constituted the sample (see table 6) were distributed throughout the Nation, employed an estimated 71,850 employees, and had an annual rate of production of 97 million tons. Thus the sample selected constituted 14 percent of the total number of mines in Government custody producing 50,000 tons or more; these mines employed about 22 percent of the miners and produced about 18 percent of the output. There was considerable variation, however, from the basic percentage of 22 in terms of miners when certain facilities were studied. For example, the hospitals investigated in the course of the Survey comprised more than half of all those in the coal-mining sections under study, because the hospitals serving miners employed in the sampled mines also serve miners employed in a number of other mines. Likewise, in the case of the houses that were studied, the total number that were personally inspected comprised 5.5 percent of all those rented to miners by coal companies in the places under survey.

In view of the fact that production and employment fluctuate differently in different areas, the exact percentages of miners, houses, hospitals, etc., reflected by the group of selected mines were regarded as unimportant, provided that the sample was of such magnitude as to present a good cross section of the conditions being studied in the industry. Representatives of Labor and Management both asserted that conditions at the 260 mines selected could be considered representative of those throughout the industry. However, because thousands of small mines were not included in the

TABLE 6.—*Distribution of mines selected as sample for the medical survey of the bituminous-coal industry, with employees and annual production, by area and district*<sup>1</sup>

Area and district	Number of mines	Number of employees	Annual production, in tons
<i>Area I</i>			
District 1, Central Pa.	33	9,045	10,155,150
District 2, Western Pa.	32	10,194	12,501,211
District 3, Northern W. Va.	16	5,858	7,512,921
District 4, Ohio	5	1,045	1,508,920
District 6, Panhandle W. Va.	4	1,108	1,287,875
Total	92	25,250	32,965,042
<i>Area II</i>			
District 7, Southern N. C.	25	11,417	11,918,422
District 8, Southern N. C.	57	17,308	19,424,752
District 9, Western Kentucky	6	1,753	5,124,633
District 13, Southeastern Ky.	14	4,629	4,027,568
Total	102	35,007	38,495,645
<i>Area III</i>			
District 5, Michigan	2	157	102,508
District 10, Illinois	21	6,124	14,024,110
District 11, Indiana	7	1,216	7,594,829
District 12, Iowa	2	251	172,414
Total	32	7,748	17,893,861
<i>Area IV</i>			
District 14, Arkansas, Oklahoma	4	465	588,524
District 15, Southwestern <sup>2</sup> Ky.	5	467	2,088,021
Total	9	932	2,476,545
<i>Area V</i>			
District 16, Northern Colorado	1	113	125,820
District 17, Southern Colorado	6	680	702,158
District 18, New Mexico	2	190	155,029
District 19, Wyoming	5	753	1,698,500
District 20, Utah	5	985	1,801,838
District 22, Montana	1	49	127,712
District 23, Washington	2	252	344,828
Total	20	3,011	5,135,885
Grand total	260	71,856	96,966,908

<sup>1</sup> Districts as set forth in Bituminous-Coal Act of 1937.

<sup>2</sup> Southeastern West Virginia and part of Virginia.

<sup>3</sup> Southwestern West Virginia, eastern Kentucky, northern Tennessee and part of Virginia.

<sup>4</sup> Alabama and southern Tennessee.

<sup>5</sup> Kansas, Missouri, and part of Oklahoma.

lists from which the sampled mines were selected, the Survey data tend to show a somewhat better picture with respect to housing, sanitation, medical services, recreation, and other conditions and facilities. This fact should be borne in mind in reading the succeeding sections of the Report.

The 260 mines that comprised the sample happen to be situated in 105 different counties, located in the 22 leading bituminous-coal-producing States.<sup>2</sup> (See map 1.) In many of these counties, coal mining is the principal industry and the principal occupation of a majority of the wage earners. In more than 40 percent of these counties, coal miners (including foremen and overseers, but excluding managerial and clerical personnel, employees of company stores, and other workers not engaged directly in mining) constituted more than one-fourth of all employed males 14 years old and over. In about 15 percent of the counties, more than half of all employed males are coal miners, indicating the extent to which coal mining is the predominant influence in some areas. In a few counties the ratio of miners to all employed workers runs over 75 percent, as for example, McDowell County, W. Va., where the proportion is 85 percent, and Harlan County, Ky., where it is 87 percent. In the coal counties of eastern Kentucky, the ratio ranges from 29 to 87 percent, with 5 of the 7 counties in the Survey having a ratio of more than 50 percent. (See table 7.) More than 85 percent of all the bituminous-coal-mine employees work in these 105 counties.

TABLE 7.—Ratio of employed miners to all employed males 14 years old and over, for 105 selected counties, by State, in 1940

State and county	Percent
<b>Alabama</b>	
Walker	33.7
Bibb	28.0
Jefferson	12.0
Marion	9.5
<b>Arkansas</b>	
Logan	26.6
Sebastian	9.7
<b>Colorado</b>	
Huerfano	33.9
Fremont	29.9
Moffat	1.9
Jefferson	1.8
Meza	1.1

<sup>2</sup> Alabama, Arkansas, Colorado, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Michigan, Missouri, Montana, New Mexico, Ohio, Oklahoma, Pennsylvania, Tennessee, Utah, Virginia, Washington, West Virginia, and Wyoming.

TABLE 7.—Ratio of employed miners to all employed males 14 years old and over, for 105 selected counties, by State, in 1940—Continued

State and county	Percent
<b>Illinois</b>	
Franklin	60.1
Perry	39.6
Macoupin	29.8
Williamson	20.1
Union	12.4
Verdun	11.5
Jackson	10.2
Sangamon	9.5
Randolph	8.1
St. Clair	5.4
Clinton	5.0
Knox	2.6
La Salle	2.3
<b>Indiana</b>	
Sullivan	22.0
Clats	11.1
Greene	1.7
Knox	12.0
Vigo	6.2
<b>Iowa</b>	
Marion	10.3
Dallas	10.3
<b>Kansas</b>	
Crawford	15.0
<b>Kentucky</b>	
Harlan	87.2
McCreary	81.5
Fletcher	80.2
Perry	53.6
Blair	52.7
Bell	39.8
Muhlenberg	39.7
Hopkins	37.7
Webster	31.7
Pike	29.2
<b>Maryland</b>	
Garrett	19.7
<b>Mississippi</b>	
Saginaw	.8
Tuscola	.8
<b>Massachusetts</b>	
Henry	6.3
Bates	2.7
<b>Montana</b>	
Musselshell	37.7
<b>New Mexico</b>	
Colfax	18.9
McKinley	14.5
Santa Fe	( <sup>1</sup> )
<b>Ohio</b>	
Belmont	29.6
Perry	21.9
Jefferson	16.1
<b>Oklahoma</b>	
LeFlore	9.7
Coal	2.1

<sup>1</sup> Data on numbers of miners not available.

TABLE 7.—Ratio of employed miners to all employed males 14 years old and over, for 105 elected counties, by States, in 1940—Continued

State and county	Pennsylvania	Percent
Fayette		61.5
Greene		43.2
Cambria		39.8
Indiana		39.1
Somerset		37.9
Washington		33.5
Clearfield		28.6
Jefferson		22.0
Armstrong		20.8
Westmoreland		12.2
Hedford		7.1
Burke		6.1
Tioga		4.6
Allegheny		3.7
Huntingdon		2.3
<i>Tennessee</i>		
Campbell		37.2
Clatsburn		33.1
Anderson		19.8
Seymour		11.7
<i>Utah</i>		
Carbon		50.5
<i>Virginia</i>		
Buchanan		10.1
Dickenson		41.7
Tazewell		39.3
Lee		21.4
<i>Washington</i>		
Kittitas		17.9
<i>West Virginia</i>		
Adams		85.1
Logan		74.5
Raleigh		65.7
Layette		63.0
Bowling		63.2
Wyoming		46.8
Mingo		42.9
Monongalia		40.3
Webster		40.3
Barbour		38.4
Marion		37.5
Mercer		23.9
Randolph		22.4
Greenbrier		21.6
Brooke		15.0
Harrison		14.6
Kanawha		14.3
Ohio		7.9
Marshall		6.1
Upshur		4.5
Nicholas		3.6
<i>Wyoming</i>		
Sweetwater		46.0
Carbon		9.4
Sheridan		8.5

Source: The number of employed males, 14 years old and over, was obtained from Bureau of the Census, U. S. Department of Commerce, Reports on Population, 1940, vol. 2; the number of employed miners is the average number of employees at coal mines in 1940, obtained from Minerals Yearbook 1941, Bureau of Mines, U. S. Department of the Interior.

The procedure followed in surveying conditions in the coal fields, as outlined in paragraph 5 of the Krug-Lewis Agreement, was rather simple. A fundamental tenet was that as much information as possible was to be obtained by personal inspection and investigation. The Survey Group was fortunate in this respect, because it comprised professional people capable of making intelligent observations and technical appraisals. Only trained observers with specialized knowledge were to be used as field investigators. For example, it was decided early that if the homes in which the miners lived were to be reported on, qualified members of the field teams were to inspect such houses personally. Likewise, with respect to hospitals, the medical officers, who were leaders of the field teams, were to inspect personally each of the hospitals in communities included in the survey. A record form of considerable length was devised to guide each of the teams in obtaining information and to make it possible to standardize the statistical data so that they could be computed and interpreted at headquarters. A statistical section was established in Washington to compile and collate the reports from the field teams.

While the teams were in the field, the headquarters staff made brief inspection trips to the various areas to explain the purposes and methods of the Survey to Management and Labor groups and to enlist their cooperation, as well as to become acquainted personally with some of the problems involved in the Survey, so that the statistical data and the observations reported later by the field teams could be better interpreted and evaluated.

It was decided, as a matter of major policy, that impartiality must be maintained by each and every member of the Medical Survey Group. The field teams were directed to advise both the representatives of the workers and the representatives of the operators of their presence immediately upon, or preceding, their arrival in a given district. Upon arriving at a mine to conduct their survey, they were instructed to discuss all matters in the presence of both parties. When a field team came onto the property of a coal-mining company, it was met by representatives of Management and of Labor—usually the superintendent and other supervisory personnel of the mine, and officers of the local union,

who were asked to accompany each member of the team during his phase of the inspection. Thus, the engineer officer, for example, while inspecting houses always visited them with a union representative and a representative of Management. All questions asked of tenants were asked in the presence of both.

This system, however, had certain minor drawbacks, which persisted throughout the Survey. One of the principal of these was the miners' misunderstanding of the purpose of the Survey. Many miners felt that the Survey teams had come into the camps to correct alleged inequities or "poor" conditions. As a result, the teams were sometimes treated as grievance committees. Local Management, likewise, often believed that the teams had been sent out to investigate complaints. All questions were willingly answered by everyone, but essential information generally was not volunteered. For example, when a mine operator was asked who had built the schoolhouse, he usually answered unhesitatingly, "The company did," but might fail to add that the company was charging the county a specified amount each month for rental. The presence of supervisory personnel and union leaders sometimes caused others to be reluctant in "confiding" in the Survey teams. Many volunteered sources of information believed to be reliable were made available to the Survey personnel. The sources of confidential information have been respected. It should be asserted, however, that excellent cooperation and cordiality were shown by both Management and Labor and by State, county, and municipal officials during the entire Survey. The comprehensiveness of the Survey is a realization because of the willing and kindly assistance rendered by these interested citizens.

In addition to the personal investigations and inspections by field teams, a questionnaire was prepared and mailed from Washington to a large number of mining companies throughout the United States. Copies of this special questionnaire also were mailed to all district headquarters of the United Mine Workers of America. It was intended to use this information to verify and corroborate specific items of information obtained by the field teams and to make known any important variations from the findings of the teams. However, it was planned to utilize only those forms, applicable to the same

mines, that both Management and Labor returned, because answers to the questions on which both parties agreed in essence were deemed the only ones having reliable validity. Thus, it was hoped that three sets of data would eventually have become available for analysis and study: (1) Data the teams were to obtain from the 260 selected mines; (2) data to be reported by both operators and union officials relating to a large number of mines not included in the Survey; and (3) data to be reported by all three groups—the teams, union officials, and operators on the same 260 selected mines or a large proportion of them. A relatively small number of returns of the special questionnaires were received. Upon analysis, it was found that many of the forms were only partly answered. In only 45 instances were data submitted by operators and union officials for the same mines, and in a number of these instances the data varied considerably. It was decided, therefore, that the information obtained from these questionnaires was not incontestable and that publication might be misleading. Consequently, no data on the information submitted by this method were included in the Report.

The Survey was concerned primarily with the human beings in the coal microcosm. Its objective was to determine broadly the extent, the adequacy, and the characteristics of the facilities and services that most directly affect the physical and mental health of the miners and their families. It did not direct itself to the economics of the coal industry or to the technology of coal mining. These phases of the industry, however, were borne in mind as the studies progressed, for it was realized that the stability of the industry; the ownership, size, age, and solvency of individual operations; the methods of mining; and the incomes, steadiness of employment, and hours and conditions of work, as well as the working environment of the miners, all have an important bearing on the requirements for medical care and on the standards of the medical facilities, housing, sanitation, and leisure-time activities in coal-mining communities. It was recognized also that the geographic settings and the strong influences of tradition had to be considered in arriving at appraisals.

As the Survey was restricted in time and investi-

gators were urged to proceed with dispatch, an inspired sense of urgency prevented the group from going into certain pertinent aspects of the problem which, to have produced significant results, might have required years of investigation and study. Consequently, no data were obtained on various related phases of the problem, such as the prevalence and incidence of specific diseases, illnesses, and disabilities; the extent and nature of nutritional deficiencies and their correlation with diet and environment; and the total costs of medical care. Further, it was not possible to derive a set of standards of medical practice. Neither was it possible, owing to the time factor, to undertake a comprehensive analysis of State workmen's compensation laws and public health laws and regulations.

One phase of the problem that seemed to demand at least a preliminary inquiry was the leisure-time activities of the miner and his family. It had been asserted frequently that the abnormal working hours, the isolation of the population in many of the company-controlled mining communities, and the dearth of opportunities for recreation, higher education, and other off-the-job activities engendered a low morale that affected the outlook and well-being of the people. To ascertain to what extent such conditions prevailed and the reasons for their existence, it was decided to include in the Survey a general investigation of such recreational facilities and activities.

Although no year can be said to be "normal" in the coal-mining industry, 1946 can be termed "abnormal" in various respects. During that year, and especially during the 4 months June, July, August, and September, in which the Survey teams were in the field, more mines were active and production was greater than is customary in a peacetime year, because of the pent-up demands for coal. Except during war years, many mines usually have a slack period during the summer. Moreover, because the readjustment from wartime conditions had not been completed, a number of younger men were still in the armed services or had not yet returned to their jobs following their discharges; consequently the industry seemed to have more older miners and fewer younger ones than is usual in times of peace.

The fact that the Survey was conducted during

the summer months, for the most part, also tended to force the investigators to visualize rather than experience the variable and seasonal condition of the roads in the communities, the influence of defects in house structures upon the inside temperatures, the full effects of surface drainage upon water supplies, the probably increased requirements for medical care, and many other conditions.

Another factor that had to be discounted was the general housing shortage throughout the United States in virtually all communities and cities. There was no way of estimating the extent to which miners would have lived in other than company-owned houses or in their own homes if conditions had permitted them to rent or purchase other houses. The circumstances were such that nearly everywhere any shelter was at a premium.

In many aspects of the problem, the Medical Survey constituted a pioneering venture. In other phases, the investigators followed in the footsteps of previous survey groups. The United States Coal Commission, which was created by the Congress in September 1922 and which expired by limitation a year later, conducted an intensive study of conditions in the coal fields, including the anthracite regions. The Commission's study was directed primarily at labor relations, wages, earnings, and hours of work, costs of production, investments and profits, and conservation of resources; and although much attention was devoted to living conditions of the miners and their families, including sanitation, housing, rentals, and costs of living, medical care and hospitalization were mentioned only briefly. The Medical Survey benefited by these studies, as well as by the excellent data and advice obtainable from and freely offered and given by the United States Public Health Service, the Federal Bureau of Mines, the Social Security Administration, the Children's Bureau, and other agencies, both Government and private, which from time to time had made partial studies on related matters in the coal fields and which conducted Nation-wide activities that result in the regular acquisition of valuable information concerning the particular areas encompassed in the Survey.

It should be pointed out, however, that the Medical Survey Group refrained from analyzing these earlier studies and avoided reference to other avail-

able data on the subjects under study until its survey was fully organized and its field investigations were completed. The Group desired to assure itself of a complete absence of influence, bias, and preconceived attitudes.

Although the Survey was conducted as an independent venture and with an impartiality that made it appear as though its purpose had no relationship whatsoever to the other provisions of the Krug-Lewis Agreement, it was obvious that section 5 could not be entirely divorced from context. The Survey bears a definite, albeit indirect, relationship to other sections of the Agreement, particularly section 4,<sup>4</sup> which provides for the establishment of a Health and Welfare Program.

This section sets up two funds: (1) A welfare and retirement fund; and (2) a medical and hospital fund for miners and their families. The latter fund, to be accumulated by deductions now being made, or to be authorized in the future, from wages of miners for medical, hospital, and related purposes, is to be administered by trustees to be appointed by the President of the United Mine Workers and is to be expended at the discretion of the trustees. The other fund, being accumulated by payments by operators of 5 cents per ton on each ton of coal produced for use or for sale, is to be administered by three trustees, one of whom is to be appointed by the President of the United Mine Workers, another by the Coal Mines Administrator (representing Management), and the third by the other two trustees. The section states that:

The (welfare) fund shall be used for making payments to miners, and their dependents and survivors, with respect to (a) wage loss not otherwise compensated at all or adequately under the provisions of Federal or State law and resulting from sickness (temporary disability), permanent disability, death, or retirement, and (b) other related welfare purposes, as determined by the trustees.

Provision also is made for coordination of policies of the two groups of trustees so that each fund will, to the maximum degree possible, operate to complement the other.

The directive under which the Survey was conducted contains the phrase "to provide the mine workers of the Nation with medical, housing, and

sanitary facilities conforming to recognized American standards." The question of determining what these standards are, either with respect to single factors or to all, defies a precise answer. There are as many concepts as there are people and groups of people. Moreover, standards are not static. The standards of yesterday are not the standards of today, nor are the standards of today what they may be expected to be tomorrow. Time and circumstance make them variable. Nevertheless, even if there can be no coherent, exact, and lasting definitions of standards, the habits and convention of the American people, together with what has been expressed by them as desirable and acceptable, form a pattern within whose limits it is possible to apply an elastic yardstick of measurement. Although such a yardstick is not accurate, it is understandable.

The Medical Survey Group, whenever possible, relied primarily on statistical evidence and weighed its estimates and valuations on scales devised by authoritative bodies when gauges were available. For example, in determining the condition of houses, the adequacy of foundations, walls, and other components was measured, after appraisal, against the minimum requirements or standards established by recognized housing authorities. Likewise, in the case of hospitals, facilities were evaluated largely in terms of the standards established by recognized hospital authorities.

In many respects, however, no such authoritative scales exist, and evaluations had to be made on a subjective basis. That which is decidedly substandard in health, housing, and other matters with which the public is personally familiar was readily discernible; and that which patently appeared to be above standard was likewise easy to recognize. In the broad range between the two extremes, where verity is challengeable, facilities and conditions had to be evaluated in relation to what is average or customary or to what may reasonably be expected. The appraisals within this broad range were made in the hope that the public would have confidence in the experience and integrity of the appraisers. It was assumed, therefore, that the judgments of the Medical Survey Group would be acceptable. It should be borne in mind that in no case was the Survey directed toward any particular mine or com-

<sup>4</sup> Included in the full text of the Krug-Lewis Agreement, which is published in the Appendix.

munity; and the Report of the Medical Survey Group does not deal with any single community by name, nor does it deal solely or primarily with isolated conditions or facilities. It deals with all communities. The Survey was concerned with the bituminous-coal industry as a whole.

This Report presents the findings of the field teams. The statements that have been made regarding conditions were based upon statistical evidence and upon personal observations of members of the Medical Survey Group, qualified and trained in making appraisals within their own professional fields. Wherever the data lend themselves to statistical handling the figures are given, together with an interpretation of such statistical data. However, the Survey Group desires the reader to evaluate those data himself.

All or any of the interpretations presented herein are not necessarily those of the Director of the Survey, or of any other one person. Rather, they represent the combined experience and viewpoints of all the members of the Medical Survey Group.

Inasmuch as the Report was based on a survey of a sample and not of all the bituminous-coal mines in

the United States, it is realized that the findings and conclusions do not have absolute verity. It is felt, however, that the conditions with respect to medical care, hospitalization, sanitation, and housing in the coal-mining areas of the Nation are substantially as reported. They are representative of the portion of the industry in all parts of the United States that normally produces over 90 percent of the coal and employs a slightly smaller percentage of the total number of miners.

Because section 5 of the Krug Lewis Agreement neither contemplates nor provides for enforcement of measures to rectify or alleviate any conditions that may be found to need correction, the Survey could hope only to establish the facts with regard to existing conditions. In the gathering and interpretation of facts, conclusions are inevitable. The Medical Survey Group went further and has presented recommendations for improving health and living conditions generally throughout the bituminous-coal-mining industry. These recommendations are offered in this Report as a guide for agencies, organizations, and individuals that have the means and the powers to take corrective action.



## Housing and Sanitary Facilities



A changing world has bypassed many coal miners and their families with respect to quality of shelter and the sanitary facilities essential to healthful living. The examples of good housing and sanitation in every major bituminous-coal-producing area only intensify the impression that a considerable segment of the Nation's coal-mining population has benefited little by improved standards of housing and health. Rip Van Winkle, having begun his nap in some section of the coal-studded Alleghenies instead of the bucolic Catskills, would awaken today to see old, familiar sights. Over yonder, clinging precariously to its

ageless hill, is Steve Bogash's unpainted house with its battered porch, perching above the same old creek exuding the same old smells. There, in the opposite direction, a row of dwellings, sooty and forlorn, all in their customary condition of super-ventilation by cracks and breaches in the sidewalls. Beyond the hills, a few scattered modern communities with sturdy, clean houses, spacious lawns, and good roads make him think he is still asleep and dreaming.

In "Coalvale," U. S. A., many of the sore spots, the decrepit houses, and the disease-breeding privies

that were the despair of earnest reformers earlier in the present century have persistently survived. That they are anachronistic in a day that boasts innumerable testimonials to the march of science tends to intensify the reality of the deficiencies. That they exist in shocking contrast to modern, sanitary, well-maintained communities stigmatizes not only the backward coal-mine operators but the whole industry.

It has been alleged that the years have brought with them few truly important improvements in the miner's domestic setting while, at the same time, they have been generous in bestowing superficial conveniences. The miner owns an eight-tube radio but lacks a sanitary toilet. A modern washing machine stands in his kitchen, but his water supply comes from a well or spring a hundred yards away. It has been charged that, although the pay envelope of today's coal miner is two or three times as large as the one his father brought home and the intervening years have been accompanied by gigantic strides in housing and sanitation both in concept and application, the majority of company-owned coal camps of 1946 remain noteworthy for their conspicuous paucity of safe and comfortable living quarters, good water supply, modern indoor plumbing, and hygienic sewage and garbage disposal. Are these allegations correct or incorrect? If there are any elements of truth in the charges, to what extent are they true?

To answer these questions, Navy civil engineer officers spent 4 months in the field, inspecting the sanitary facilities and the dwellings of miners employed by 260 workings in all major sections of the Nation's bituminous regions. These engineers, as

members of the Survey teams, went into 2,028 homes to ascertain their structural quality and also inspected the sewage- and garbage-disposal facilities, water supplies, and other attributes of the homes in coal-mining communities. They interrogated tenants, coal-mine operators, labor-union officials, local officials, and others. The information from tenants was obtained in the presence of at least one representative each of the local union and the company operating the particular mine, except in a few instances where invitations to accompany the Survey engineers were declined by union officials or by the operators' representatives. Every effort was made to collect only the facts. Preliminary visits were paid to the offices of the State health departments and other State and local public agencies, the coal producers' associations, and the district headquarters of the union to advise them of the Survey and to solicit their assistance and cooperation.

Before the field work was begun, certain minimum standards were adopted, the criteria being based upon minimal requirements of the National Housing Agency and the United States Public Health Service. It was assumed that all dwellings should have at least two subdivisions, one for cooking and dining and one for sleeping purposes. Other requisites for adequacy are fresh, potable water on the site, some form of refrigeration for food preservation, a stove for cooking and means for heating a home to a comfortable temperature in winter, safe facilities for artificial lighting, window areas of not less than 10 percent of the floor space, proper ventilation, and sanitary garbage and sewage disposal.

## HOUSING

The houses of bituminous-coal miners investigated by the engineers can be separated into five classes:

1. Houses rented by coal miners in coal-mining communities that are owned or controlled by coal-mine operators who have undertaken the responsibility for providing water and sanitary facilities on their properties. Such communities are hereafter referred to as company camps. (The use of the word "camps" is not intended to connote impermanence or mobility.)

2. Houses rented by miners in coal-mining communities formerly owned or controlled by coal-mine operators, which

have been sold to real estate companies or to others in the real estate business.

3. Houses rented by miners in rural areas, towns, and incorporated places and not on property owned or controlled by coal-mine operators.

4. Houses owned by individual miners and occupied by them in coal-mining communities that were originally established as company camps. Such houses were purchased by miners directly or indirectly from coal-mine operators.

5. Houses owned by individual miners and occupied by them in places other than company camps or former company camps.

All houses except those in the first class are referred to in this report as "privately owned" or "non-company-owned."

Because many bituminous-coal mines were developed in places that at the time were remote from established communities, because the most promising coal deposits were located there, it was obligatory for the operators to provide housing and associated facilities to attract and hold labor. Before 1920, facilities for public transportation in mining areas were limited, and the days of extensive ownership of private automobiles had not yet arrived. Since 1920, conditions have changed materially. The wide development of networks of all-weather roads, together with the expansion of public transportation facilities and increased ownership of privately owned vehicles, so enhanced the accessibility of once-remote areas and so lessened the traveling time from mine sites to urban centers and other communities that changes in the status of company camps became inevitable. This improvement in transportation, particularly marked in areas with low or rolling terrain and in areas with high concentrations of population, together with other factors, obviated the necessity for many operators to provide new or additional housing. It created a tendency on the part of some operators to dispose of the housing they had originally constructed.

Consequently, regional differences in the size and character of company-owned housing projects were emphasized. The situation at present may be summarized as follows:

1. Northern Appalachian area: In Pennsylvania and northern West Virginia, many coal companies have been selling their houses or are preparing to do so. Very few new camps are being constructed.

2. Southern Appalachian area: In southern West Virginia, eastern Kentucky, Virginia, and Tennessee, new camps are being constructed by a number of operators, as new mines are developed in places that are not adjacent to, or near to, incorporated communities. In Alabama, one operating company at least is constructing homes designed for sale to its employees. These homes, which are modern and attractive, on 1½-acre plots, are purported to be offered for sale at less than cost in an effort to encourage home ownership by the company's employees.

3. Midwestern area: In Arkansas, Illinois, Indiana, Iowa, Kansas, Michigan, Missouri, and Oklahoma very few company-owned communities exist. Of the 41 mines surveyed in these regions, only 4 had any company-owned dwellings; and none

approached, in scope or intent, the status of a company camp. The largest group of dwellings owned and rented by a coal operator consisted of 36 houses within an incorporated municipality. The majority of these houses were occupied by persons not employed by the coal company. In another instance, about 25 houses, which had been originally erected by individuals on land later selected for strip mining, were relocated and reconditioned for occupancy. In general, the miners in these Midwestern States live in their own homes or in homes rented from individuals, at varying distances from the mine site, most frequently in nearby incorporated municipalities. In States such as Oklahoma and Arkansas, where the mines are more dependent on seasonal markets, miners who must rely upon other industrial jobs or upon part-time farming to supplement their incomes naturally prefer living at places close to their alternative job opportunities.

4. Far Western area: In Utah, Colorado, Wyoming, and other major coal-producing States in the Rocky Mountains, company camps are common. Because of the isolated location of some of the mines in this area, these camps have had to be built large enough to accommodate the entire complement of workers. Accordingly, during slack seasons or slack years, a large percentage of the houses in some camps may be found to be vacant. Several new housing camps or additions to camps have been built during the war. One of these, under construction during the Survey, was being established on the outskirts of a large municipality, a considerable distance from the mines.

The growth of strip mining in the industry also has, to a large extent, minimized the need for housing in association with coal-mining operations. The relatively smaller number of men required for the production of coal by stripping as compared with underground mining minimizes the problem of the surface operator of obtaining and holding a labor force. Twenty-nine strip mines were included in the 260 mines selected as a sample for the Survey.

The Survey engineers made an effort to appraise the housing and sanitary facilities and, in certain cases, to draw comparisons. Only the dwellings of miners were inspected; homes of supervisors, foremen, office workers, and others affiliated with coal-mining operations were not included.

### *Number of Houses Inspected*

The Survey investigators visited homes of miners employed by each of the 260 mines included in the sample. In all, 2,028 houses were visited and studied in detail, and in addition approximately 25 times that number were observed without detailed inspection. Upon entering a company camp, the Survey teams selected for study a number of those



*Company-owned dwellings, situated in a gully adjacent to mine waste dumps—an example of some of the poorest housing observed by the Survey teams.*

dwellings, occupied by miners, which were representative of the various types of architecture in the community. Because of this procedure, it was essential to appraise the housing in each community in its entirety. Furthermore, general observations were made of the housing adjoining, or in the vicinity of, company camps, and also of the housing in other communities where relatively large numbers of miners lived. The conclusions with respect to housing, therefore, are based on the factual data obtained by detailed inspection of the dwellings visited and are confirmed by observations, from a technical viewpoint, of altogether more than 50,000 houses occupied by miners.

Fifty-seven percent (1,154) of the houses visited were the property of the operating coal companies, and 43 percent (874) were non-company-owned. The operators of the 260 mines own a total of 21,197 houses, of which 5.5 percent were canvassed in the course of the study. Inasmuch as the largest

number of miners reside in the Appalachians and the largest number of mines selected in the sample for the Survey are situated therein, it follows that the Survey teams inspected the largest number of houses in that region. Of the 2,028 houses, 29 percent were in Area I (Northern Appalachian area), 49 percent in Area II, 15 percent in Area III, 2 percent in Area IV, and 5 percent in Area V. In Area III, as heretofore stated, no company camps and a negligible number of company-owned houses were found.

### *Sites of Company Camps*

Sites for community housing for use of mine employees apparently were selected in accordance with a combination of at least three definite factors—geology, topography, and economy. Once the location of the mine is decided upon, the nature of the terrain and the amount of money a company can or will invest in housing and sanitary facilities deter-



*A contrast in sites of company-owned housing.*

mine the extent of the lay-out and the character of the construction. The first considerations are given to the mine portal, the tippie, and appurtenant industrial structures. It then follows that certain key personnel will be required to reside in the immediate vicinity of the operation; hence, a few residential structures spring up, followed by others on company real estate holdings. At this point topography and its control over economy dictate the nature and extent of the housing development and appurtenant facilities. If the terrain is reasonably level, a fairly well defined "city plan" can be designed, with semblance of streets, walks, drainage, and other desirable features. Regardless of terrain, economy often has dictated long rows of regular rectangular or square houses with unvarying plans, and a minimum of roads. However, in many places the topography contiguous to, or in the approximate vicinity of, the mine workings, is rugged and irregular, and not adapted to good development. As a consequence the company, being in business for profit, tends to build for the least cost, and the resultant product is one type of familiar company camp, its buildings perched on stilts on either side of a meandering stream or on both sides of a railroad track. A real estate company, in projecting a subdivision where houses were to be sold or rented on the basis of merit or desirability, would not be likely to locate on the sites selected for the vast majority of company camps.

The condition of terrain in the Appalachian area, particularly in West Virginia, eastern Kentucky, Virginia, and Alabama, where mines are located in long narrow valleys or hollows between steep hills, limit the choice of housing sites, with the result that many of the communities are aggregations of dwellings crowded along the banks of streams or scattered on hillsides. Although the Rocky Mountains are more rugged than the Appalachians and one would therefore expect to find similarly difficult conditions in the West, the existence of broad plateaus and spacious valleys makes proper selection of sites in that region of the country a simpler task.

### *Roads*

In a West Virginia mine camp, one of the best found in the study, a complete system of broad, hard-surfaced, all-weather roads and streets at rea-

sonable grades had been provided. This camp is situated in a relatively broad valley, where the terrain imposes no special limitations. Other camps throughout the country, with similarly favorable topography, were observed to have systems of paved roads and streets. Even where the topography is rugged, some companies, by careful planning and through initiative, have developed well-laid-out networks of paved roads, which are kept in repair. In these camps on hilly ground, masonry retaining walls protect embankments, and concrete drainage ditches and culverts prevent erosion of the ground surface.

However, in the majority of camps, all but the main highways are dirt roads, the grades of which are often excessively steep. Some company camps have no roads at all, other than the county highway which leads past the tippie; dry creek beds and wagon trails are the only means of ingress and egress of vehicular and commercial traffic. In wet weather many roads are impassable, and during warm, dry periods, clouds of dust are raised by passing vehicles. An occasional application of oil, plus regrading of the surface, which would aid materially in preserving these roads and reducing the dust nuisance, is seldom, and in many small camps never, done. In the small camps, certain commodities, such as coal or furniture, often must be delivered to some houses far from the main highway by means of skids, small wagons, or other primitive vehicles.

### *Architecture*

Of the 2,028 houses visited, 1,859 (92 percent) are of frame construction, the remaining 8 percent being of brick, tile, cinder block, adobe, masonry veneer, stucco, and other materials. Sixty-six percent are 1-story buildings, and 32 percent are 2 stories and 2 percent 3 stories in height. Of the company-owned houses, 72 percent are 1-story, 27 percent 2-story, and 1 percent 3-story structures.

The cheapest materials usually have been selected for "camp" houses, and little thought has been given to general appearance. Inasmuch as any variation from the square or oblong plan increases the cost without adding to the floor space, the result often is a group of boxlike structures, giving an impression of monotonous uniformity. Accentuating this monot-



*A contrast in roads at two company-owned communities.*

only of certain company-owned housing is the practice of mining companies of painting the houses in their camps in a distinctive color pattern. For example, when painting is done although it is a too-frequent omission—one company paints all of the houses in all of its camps gray, with black trim; another company paints its houses gray with green trim; a third company uses yellow with brown trim. Some companies, however, are abandoning this practice, and in one instance a company permits its tenants a choice of four different color combinations.

In those exceptional cases where more imagination has been employed, the size of dwellings ranges from three rooms to six or more, or the general appearance has been improved by varying the alignment of the structures having the same floor plan. Although single-story individual homes are most common, two-story duplexes or multiple attached structures have been built by a number of operators, to reduce the cost per unit.

From the survey of many company houses, a conception of the average structure may be formed. It is of frame construction, about 28 feet square. This one-story dwelling contains four rooms, including a kitchen, two bedrooms, and either a living room or dining room. It has no closets and no bath. It has an asphalt composition roof and wood siding. The exterior may be resheathed with a composition roll material or something similar, which improves its appearance at moderate expense. The house is supported above ground on wooden posts or masonry piers and has no basement. The area beneath the floor is likely to be exposed to winter winds, but this does not preclude its utilization as a pigsty or a chicken coop. Except for resheathing, only occasionally has any attempt been made to insulate the house for economy of heating in winter or for coolness in summertime. The dwelling is heated by coal stove or grate. The outdoor privy is 10 to 50 feet from the house. This privy frequently is on a hill above the house, readily draining toward the house and the water supply.

## Bathrooms

Although the world of today is one of nuclear fission and jet propulsion, of international aviation and frequency modulation, of frozen foods and

penicillin, the simple bathtub or shower is still a rare item in the houses miners and their families occupy in coal-mining camps. Of the 1,154 company-owned houses inspected, only 121 contained bathrooms in which there were either tubs or showers, or both. (See table 8.) Miners and their families who are living in other than company houses apparently are more fortunate, for in the 874 non-company houses that were visited 268 bathrooms were counted. In other words, bathrooms were observed in only 10 percent of the company-owned houses occupied by miners and their families. In privately owned homes occupied by miners and their families, 31 percent had bathrooms with tubs or showers, or both. These percentages may be compared with figures for nonfarm dwellings which, according to the Sixteenth Census of the United States (1940), shows that 40 percent have installed bathing facilities.

TABLE 8.—Bathrooms<sup>1</sup> in houses occupied by miners

Ownership of houses	Number of bathrooms	Bath-tubs only	Showers only	Bath-tub and shower
By companies	121	100	16	5
By others	268	247	15	6

<sup>1</sup> Bathrooms are defined as rooms fitted with bathtubs or showers or both fixtures, which have running water, but not necessarily hot water. Rooms possessing toilet and basin only are not counted as bathrooms, even though they may be separate rooms in the houses.

An interesting relationship between the size of mines and the ratio of bathrooms to company-owned houses is shown in the following table (table 9). In

TABLE 9.—Distribution of bathrooms in miners' houses, by classes of mines

Annual production, in tons	Company-owned houses		Percent, by production class
	Number of houses surveyed	Number of houses with bathrooms	
Less than 100,000	120	11	9
100,000 to 499,999	691	65	9
500,000 to 999,999	191	23	12
1,000,000 and over	152	22	14
Total	1,154	121	10.0





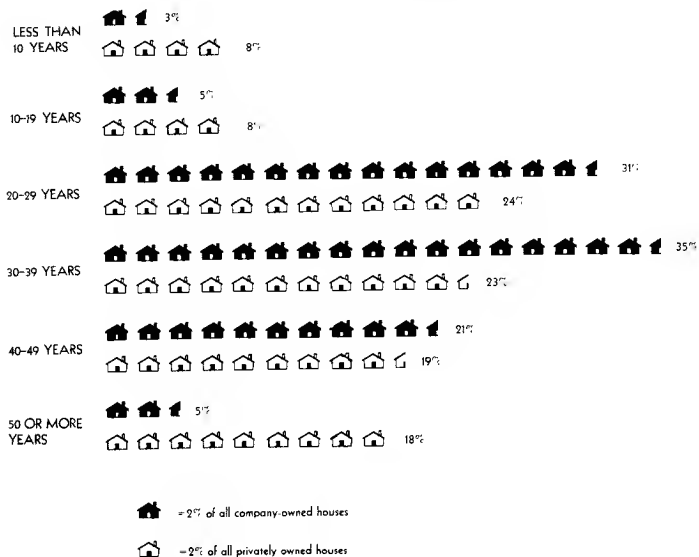
*Architectural types of company owned houses rented to miners*

houses owned by the larger coal-mining companies there are twice as many bathrooms, proportionally, as among those owned by the smaller companies.

Although houses in rural areas or in communities that have no organized water-distribution systems ordinarily do not have bathrooms with tubs or showers, many houses situated where water can be piped to them lack modern bathing facilities. In

view of the dusty conditions under which the miner works and of the grime common to all active mining communities, the general lack of bathrooms is particularly striking. In some camps, however, wash-and-change houses for the use of the miners are available at the mines; but, paradoxically, individual bathrooms are more common in those communities with wash-house facilities.

## SURVEY OF MINERS' HOUSES BY NUMBER OF YEARS OF OCCUPANCY



\*Based on data on 805 company owned houses and 735 privately owned houses, 1945.

FIGURE 1

## Age

The oldest residences observed dated from the 1860-65 period. There was little camp construction on a large scale between that era and 1905-8. With the greatly increased coal requirements that developed at the time of the First World War, another period of great activity in workers' housing construction began. Few camps have been constructed in the northern Appalachian region since 1920, although there has been some new construction in the southern and western fields during this period, continuing down to the present time. Eighty-seven percent of the company houses inspected are 20 to 50 years old; 8 percent were erected within the last 20 years. A few camps were known to be under construction during the period of the Survey; but, in view of the nature of the Survey, no data were obtained on them. (See fig. 1)

TABLE 10.—Comparison of houses surveyed, according to ownership and age

Age, years	Company-owned		Non-company-owned	
	Number of houses	Percent	Number of houses	Percent
1 to 9	23	2.9	62	8.4
10 to 19	43	5.3	58	7.9
20 to 29	248	30.8	178	24.2
30 to 39	283	35.2	169	23.0
40 to 49	199	24.0	136	18.5
50 to 59	28	3.5	80	11.7
60 to 69	10	1.2	31	4.2
70 to 79	0	0	10	1.4
80 to 89	1	.1	3	.4
90 to 99	0	0	2	.3
Total	906	100.0	738	100.0

NOTE.—Age was not determined on 349 company-owned houses and 149 non-company-owned houses.

## Occupancy

The 2,028 houses visited were occupied by a total of 9,532 persons, of which 5,341 were adults and 4,191 children below the age of 18. Almost all mine camp dwellings and a majority of the non-company-owned homes occupied by coal-industry workers are classifiable as rural nonfarm properties. Rural areas are considered to include all homes in places with populations of 2,500 persons or less.

Data obtained from the 1940 Census of Housing reveal that 89 percent of rural nonfarm dwellings have an occupancy ratio of 1.5 persons, or less, per habitable room, and 11 percent of such dwellings have an occupancy of more than 1.5 per habitable room. In comparison with these Census Bureau statistics, this Survey reveals that in dwellings owned by coal companies and occupied by miners 75 percent have an occupancy ratio of 1.5 persons, or less, per habitable room, and 25 percent have an occupancy of more than 1.5 persons per habitable room. Table 11 serves as an index of crowding for various classes of dwellings in the United States, using an occupancy of 1.5 persons per room as a dividing line.

TABLE 11.—Percentage comparison of occupancy per habitable room of dwellings surveyed and of dwellings reported for United States, by classes

Persons per room	Company-owned	Non-company-owned	Rural nonfarm	Urban	Rural farm	United States
1.50 or less	75.0	90.0	88.9	94.3	83.9	91.0
1.51 or more	25.0	10.0	11.1	5.7	16.1	9.0

SOURCE: Last 4 columns from Bureau of the Census, Census of Housing, 1940, vol. 1.

In comparing figures in table 11, it should be borne in mind that the United States Census Bureau included in its figures "All persons enumerated in the population census as members of the household (including lodgers, servants, and other unrelated persons having no other usual place of residence)." This Survey did not count transient occupants or temporaries, such as sons recently returned from military service who brought their families to live with parents or "in-laws" while they searched for permanent quarters. In the 2,028 houses surveyed, there were 8,879 habitable rooms, an average of 4.4 rooms per house. The average number of persons per dwelling was 4.7.

## Maintenance

It is customary for the more progressive coal producers to carry on an efficient and continuous campaign of home maintenance and repair. The attractive appearance of these camps often belies



*Company-owned house occupied by miners, showing an extreme state of disrepair.*

their age, testifying to the truth of the proverb, "A stitch in time saves nine." A small defect, if neglected, may become a major job within a few years. Those companies that can be more particular in selecting employees have the least to worry about with respect to the upkeep of company houses by the tenants. Here, good housekeeping and neat gardens are the rule rather than the exception. Unfortunately, such camps do not typify the industry. Most of the operators stated that they paint and make repairs only when needed; they have no regular, periodic program of maintenance.

The upkeep program is correlated with many other factors, such as the financial status of the operator, the age of the camp, and the anticipated remaining life of the mine. It is not uncommon for operators, called upon to explain the shabbiness of their tenanted dwellings, to shrug their shoulders and say, "Well, the mine is about worked out. We expect to shut down soon." Camp maintenance usually ceases several years before the mine is to be

abandoned. "Shoe-string" operators put scant funds into upkeep.

Certain employees of strip mines reside in camps adjacent to underground workings long since abandoned; and, because of the comparatively short life of these strip operations, no maintenance work is done. Conditions in most of such small camps vary from "fair" to "very poor." Some families are living in homes where parts of roofs and porches have collapsed and the house is in almost total disrepair; but, according to the information obtained, no rents are charged for such homes. The operator-owners state that it is better to keep all houses occupied because vandals destroy any that are vacant.

A majority of the houses in small camps are in poor repair and show no evidence of fresh paint inside or out over many years. Roofs on such houses may be weathertight, but walls frequently are not; siding is cracked, and floors often have open joints. Broken glass, if not replaced by the company, often is replaced with wood or cardboard by tenants.



*A contrast in maintenance and repair. The houses in upper photo, which belong to a large coal-producing company, are kept in good condition by a regular program of maintenance and repair. The houses in lower photo, owned by a small company, typify the common absence of regular maintenance and repair programs by many small companies.*



*Poor maintenance also evidences itself in condition or absence of lawns and walks. The upper photograph is a western camp where water is not plentiful, yet tenants and management join in making their community attractive.*

One of the common practices in company camps is to divide responsibility with respect to upkeep between the operator and the tenant. The operator assumes the obligation for essential repairs and the exterior appearance of the house, whereas the tenant is expected to assume responsibility for the appearance of the interior of the dwelling he occupies. Consequently, there is often no correlation between the internal and external appearance of many of the houses in company camps. Some houses that from the outside appeared to be squalid hovels were found to have clean and neat interiors, with freshly painted or papered walls, linoleum-covered floors, and other improvements that provided a startling contrast with the external appearance. At one camp in Pennsylvania the tenants, undismayed by shortcomings in maintenance of the camp, had built bathrooms and garages on their own volition. On the other hand, some modern, well-constructed houses, freshly painted outside, were found to be a virtual shambles within—plaster knocked out of the walls, nails driven into woodwork indiscriminately, plumbing fixtures cracked, and floors roughened and filthy. In general, however, the houses that were kept in good condition and appearance by the operators were also those that were best-maintained by their tenants.

To promote interest in housing maintenance and repair on the part of tenants, many operators in addition to those who keep the best camps provide cooperative tenants with materials and equipment for decorating and making improvements. Some companies, as a matter of policy, supply without charge paint, paper, and other decorating materials to all tenants; others do this only for selected tenants. These companies—according to statements by supervisory officials and by the miners themselves—also provide lumber, nails, and other building materials to their “best” tenants, who show an inclination to close in the underside of the houses, build closets, or make other improvements or repairs. The more enterprising officials also encourage their tenants to plant lawns, even providing seed without charge; a few promote vegetable gardening and offer prizes to stimulate competition.

Inquiries made of operating officials in the best-looking camps inevitably revealed that at each of these places tenants were carefully selected, houses

and grounds were inspected frequently, and supervision of the housing was a matter of company policy. Selection of tenants, however, was practiced in many of the so-called average-looking camps and even in some of the poorest-looking ones. The “best” tenants were usually provided with the choicest houses (next to those of the foreman, supervisors, and white-collar workers), these houses being generally situated in the heart of the camp—along the main highway. Conversely the “bad” tenants (poor housekeepers, unreliable workers, families with troublesome children) were moved farther up the hollows or valleys, away from the center of the camp, usually in sections never visited by strangers.

During the survey, the investigators often found houses standing crazily askew, due to rotting or settling of the wooden supporting posts. The fault most frequently observed, however, was weakened, broken, or decayed portions of porches and stoops. For example, in one camp there is a house whose front and side porches are separated from the dwelling proper, and anyone entering or leaving the house risks breaking an ankle or leg. The roof sags; walls are cracked; and, in short, one wonders how the building can withstand anything stronger than a mild breeze. In another place nearby, a housekeeper offered a pail as an exhibit, with the explanation, “This is what I have used under the leak in my roof for the last 20 years.”

The maintenance of miners’ homes was evaluated on the basis of seven structural characteristics and one site-location factor. The eight major criteria, based on authoritative housing standards, are as follows:

1. *Drainage of the site*.—Deficient where rain or flood water fails to drain away from homes in low areas, resulting in pools in yards; or where, during floods, water may rise to floor levels.
2. *Roofs*.—Deficient where leaks or sagging, owing to general settling of the structures or to rotting of rafters.
3. *Exterior walls*.—Deficient where wood siding is cracked and split, or battens are missing, permitting cold air to enter through the walls.
4. *Floors*.—Deficient where floor boards are broken or cracked, or joints separated. Floors may be seriously out of level, due to settling of structures or decay of joists.
5. *Foundations*.—Deficient where timber posts or braces have rotted or settled, causing or threatening damage to various parts of the house.





6. *Porches and stoops*.—Deficient where broken or weakened, menacing life or limb.

7. *Doors*.—Deficient where lacking in reasonable weather-tightness and ease of opening and closing. Latches must be in operating condition if doors are to be considered adequate.

8. *Windows*.—Deficient where defects are similar to those found in doors.

TABLE 12.—*Evaluation of houses surveyed with respect to adequacy of drainage of site, and of roofs, walls, floors, foundations, porches, doors, and windows, by ownership*

Number of attributes made adequate	Company-owned		Non-company-owned	
	Number of houses	Percent	Number of houses	Percent
0	20	35.0	122	70.0
1	220	19.0	102	12.0
2	142	12.0	41	5.0
3	113	10.0	25	3.0
4	113	10.0	26	3.0
5	74	6.0	17	2.0
6	48	4.0	20	2.0
7	30	3.0	16	2.0
8	7	1.0	8	1.0
Total	1,154	100.0	874	100.0

According to table 12, only 35 percent of all the company-owned or company-controlled houses that were surveyed are fully adequate with respect to all criteria relating to site and structure. The comparable efficiency rating of non-company-owned houses is exactly double—70 percent. In other words, 65 percent of the company-owned houses were found to be inadequate in one or more respects, as compared with only 30 percent of the privately owned houses. Very few houses were found to be defective in all the attributes listed (1 percent of each of the company-owned and non-company-owned), but those observed (15 houses) were so deteriorated that they constituted an obvious menace to health and safety. The data seem to indicate that greater interest is manifested in the upkeep of privately owned homes, whether owned or only rented by miners, as contrasted with those company-owned for rent to miners. They indicate also a general lack of maintenance by the coal companies.

The most common structural defect in company-owned houses is the condition of the windows and doors, 32 percent of the windows and 37 percent of the doors in company-owned houses being defective, as compared with 10 percent and 11 percent in privately owned houses. Twenty-seven percent of the porches in company-owned houses and 16 percent in the privately owned houses had porches with broken boards and rails, missing steps, or other defects that are hazardous to life and limb. The next most common defects were found in the condition of foundations, floors, and side walls. Defective foundations were observed in 25 percent of the company-owned houses and in 12 percent of the privately owned ones; defective floors in 23 percent of the former, and in 11 percent of the latter; and defective walls in 22 percent of the former and in 11 percent of the latter.

Another interesting sidelight is demonstrated by the following table 13, which shows that the larger the mine the greater the likelihood of company-owned houses being structurally sound in all respects. Among mines whose productive capacity is more than 1,000,000 tons annually, five out of eight company-owned houses (63 percent) earn passing marks on all eight features. At the other extreme, mines in the class producing less than 100,000 tons annually rate a grade of only 12 percent, only one dwelling in eight attaining a perfect score.

TABLE 13.—*Structural adequacy of company-owned housing, by classes of mines*

Annual production, tons	Number of houses	Number of houses adequate	Percent adequate
Less than 100,000	120	15	12
100,000 to 499,999	691	157	23
500,000 to 999,999	191	101	53
1,000,000 and over	152	96	63
Total	1,154	369	32

An impressive study in contrasts is present in one Kentucky county where two camps, while comparable in population and homogeneity of the inhab-

Opposite page: The eight major criteria by which the adequacy of dwellings occupied by coal miners was judged: Roofs, doors, drainage of sites, foundations, floors, windows, exterior walls, and porches and stoops.

itants, are at opposite poles with regard to maintenance and appearance of the dwellings, both inside and out. One is an attractive community of single, detached frame dwellings practically all of which are kept in spotless condition by Management and the tenants. Nearly all the homes have bathrooms, hot and cold running water, and water-borne sewage. A five-room house rents for \$22 a month. The property was originally developed and owned by another company and was purchased by the present owners about 15 years ago. Five years after purchasing the property, the company instituted an extensive remodeling program, including the installation of running water and flush-type toilets in every house. Numerous recreational facilities were constructed, and the community was incorporated as a municipality. A regular program of maintenance is conducted.

Five miles away is the other camp. Like the former, its inhabitants are of old Anglo-American mountaineer stock. The population is somewhat smaller. Here are found some of the most ramshackle, unhealthful dwellings of the entire Survey. Most of them are dreary four-room houses rented for \$6.50 per month. Originally, these houses were well-constructed, but they have been permitted to deteriorate. The owners explain the poor maintenance by stating that the life expectancy of the mine is now 5 years. The union, the mine operators, and the tenants themselves at this mine operation pay little attention to maintenance.

The sharp differences between these two communities go far beyond the character and quality of the housing. The first community enjoys municipal government, a new brick school building, and ample recreational opportunities; but the second community depends solely upon company largesse, boasts nothing better than makeshift school buildings, and lacks the most meager facilities for sports and recreation. The first case is an example of commendable progressiveness and shows what can be and has been

accomplished in certain segments of the bituminous-coal industry; the second illustration attests to an attitude and a condition that the statistics of this study indicate are far too prevalent in the bituminous-coal industry.

### *Screening*

One of the outstanding deficiencies of miners' houses, whether owned by the miners or rented from mine operators or others, was their screening. About a fourth of all the houses, company-owned and privately owned, entirely lacked screens or had a few each that were in such a state of uselessness that, for practical purposes, they must be considered absent. Thirty-four percent of the company-owned houses were considered by the Survey to be adequately screened, as compared with 58 percent of those owned by others. A house was considered adequately screened if all windows and doors that were usually opened were protected by snugly fitted screens in good condition. A large number (40 percent) of the company-owned houses had been equipped with screens, but they were either missing from some of the windows and doors or had been permitted to rust or remain damaged. The screens were found rusted and broken in only 15 percent of the privately owned homes. The most noticeable lack of screens was noted in connection with privies; many of them were observed to have been originally fitted with screens, but they had long since been broken or rusted out.

### *Housekeeping*

There is patently a close relationship between maintenance and housekeeping by tenants. Houses kept in good repair by Management are likely to be well-kept and neatly furnished inside by the tenants. Such a generalization must, however, be read cautiously, for too many exceptions have been noted,

*Opposite page: Housekeeping is often a matter of personal preference. The kitchen in upper photo is part of three-room company-owned house in West Virginia, about 50 years old, for which the miner pays \$7.90 a month rent. The one in the lower photo is part of a four-room company-owned house in Kentucky, about 20 years old, for which the rent is \$9 a month. There is no wash and change house at the mines at which the occupants of both houses work, but the house in the upper photo has running water.*





*Bedrooms in two houses on opposite sides of the same street of a company-owned community in northern West Virginia, showing that the exterior condition of a house is not necessarily indicative of its internal appearance.*



*Electrical wiring in many of the company-owned houses is crudely installed and constitutes a fire hazard. Baseboard outlets were found by the Survey in only a relatively few houses.*

where dilapidated structures were handsomely equipped with furniture and modern electrical appliances, all arranged tastefully and maintained in spotless condition; conversely, in other instances virtually new houses were almost bare inside, with beds in apparently permanent disarray, unwashed dishes on the tables, garbage on the floors, and foul odors permeating every room.

### *Fire Protection*

Fire protection in mining camps is haphazard. This function generally is performed on the voluntary basis common in rural communities. Homes and most other buildings are of tinder construction, so

that a fire would reduce them to embers in a matter of minutes. Certain camp sites have a system of fire lines with hydrants spaced at intervals, but in case of fire it is doubtful whether fighting equipment could reach the scene in time to save the burning structures, or whether available water pressures would be adequate in combatting any blaze of appreciable intensity. Fires during class hours in schools of these camp areas could cost many lives. At one place in eastern Kentucky, the schoolhouse burned in January 1943 and has never been replaced. Classes are now held in three old wooden shacks improvised for elementary education. Enrollment exceeds 300 children between the ages of 6 and 16, for



*Kitchen of a Kentucky miner and his family. The house is rented by the miner from his employer, a captive-mine operator. Excellent housekeeping by the tenant and good equipment and maintenance by the company make this house one of the most attractive seen in the Survey.*

whom there are 7 teachers. In the same community, the company store was destroyed by fire early in 1946, with a reported \$100,000 loss. This camp has no fire-fighting equipment. Of the company camps surveyed, only a few have their own fire trucks or similar mechanized fire-fighting equipment. One company in Area III, owning and operating 8 houses near the mine workings, had installed a rack of fire ladders of assorted sizes, centrally located on the sidewalk in front of the houses, ready for immediate use in case of fire. As in the matter of fire-fighting equipment, such provisions for meeting the contingency of fire were seldom in evidence at mines visited by the Survey teams.

### *Heat and Light*

The most popular methods of heating are coal stoves and fireplaces. Often both are used in the same dwelling unit. Other heating equipment includes wood-burning stoves, gas stoves, and electric heaters. Also, a few hot-water heating systems and a few coal-fired hot-air furnaces were noted.

Heating for cooking purposes is provided by coal in the large majority of miners' homes. Other fuels, used in some camps, are gas, wood, and oil; electricity is employed in very few places. The cooking range is a supplementary heater in many homes.

Fireplaces were built into many of the company

homes, but with the modern, efficient circulating hot-air stoves now available the heating problem frequently is solved by this means. The circulating systems are more common in the Northern than in the Southern States. Many of the houses in the Southern States are so designed that a single chimney in the center of the house serves two or more fireplaces in as many rooms.

Coal usually is sold to the miners by the mine operators at reduced rates; or, in many districts, the operator assesses a monthly charge against the employee, which entitles him to as much coal as he requires. The amount of the monthly coal charge is determined by agreement between the union and the operators. In addition, a charge, which varies in different camps, is made for delivering coal. Delivery

is made by the company, by a contractor hired by the operators, or by the local union.

Gas, when available, is supplied by natural-gas companies, or, in rare cases, by one of the several brands of gas supplied in cylinders, ordinarily called "bottled gas."

Nearly all mines use electricity, consequently 97 percent of the dwellings are provided with current. Baseboard outlets for floor lamps were found in only a few instances. The wiring within camp houses varies from all that the National Electric Code requires to installations that are serious fire hazards. Often the conductors are exposed on walls and ceilings; the insulation might be destroyed and easily result in a short-circuit of the system, starting a fire. This is particularly true in the older houses.

*Kitchen in a Kentucky miner's home, exemplifying poor housekeeping in a poorly furnished and inadequately maintained house. The house is rented from a real estate company.*



Electric current is supplied and charged to residents of company houses in one of the following ways:

1. Metered service under direct arrangement with the local power company, independent of the mine operator.
2. Submetered services, where all power comes through the mine company's power services, and charges for electricity are paid by tenants to the operator.
3. Nommetered service, under which tenants periodically pay to the operator a fixed amount, based upon the number of outlets and the electrical equipment used in the house.
4. Nommetered service, under which tenants pay flat-rate charges to operators based upon a unit price per house, regardless of the number of lights and appliances.

It is common practice for commercial power companies to sell electricity at graduated rates, depending upon the amount of energy consumed. The greater the consumption of power, the lower the average price by the kilowatt-hour. Thus, where the operator purchases power from a utility company and sells it to his tenants at the primary rate, he is not relaying the benefit of large-volume rates to his tenants. A few instances have been observed where this practice of secondary sales to tenants has lowered the operator's costs for industrial power. If the tenant's service is metered this makes no difference to him, as he would pay the same rate if his contract were made directly with the local utility company. If the service is not metered, the tenant may be paying total monthly charges the same or higher than those obtainable through metered service. However, the installation of meters on all the houses in many company camps has not been economically practicable.

Flat charges for electricity vary from one camp to the next and from one section to another. In the four-State area of Kentucky, West Virginia, Virginia, and Tennessee, monthly flat charges<sup>1</sup> range from about 40 to 50 cents per "drop," or outlet, 25 to 50 cents for use of radio; 75 cents to \$1 for a washing machine; 25 cents to \$1 for an electric iron; and \$1 to \$2 for an electric refrigerator. In some instances, the total monthly charges for electricity exceed the monthly rental charges to the tenants.

<sup>1</sup> Estimated charges, based on relatively very small number of observations made and presented here solely to indicate the method of applying flat charges.

## Rentals

Wage agreements between the operators and the United Mine Workers now stipulate that rentals for company-owned houses shall be established by supplemental agreements, and these figures currently average about \$2.50 per room per month. In some areas a flat \$1 charge is made in addition for each house. Thus, the monthly revenue from each house of four rooms is \$10 or \$11, plus the rental on a garage if any exists. For a six-room house the rent would be \$15 or \$16 on this scale. These rents do not depend upon the condition of the house in many instances. There are known examples where rentals are \$25 to \$30 monthly for four-room houses with modern facilities.

For housing in mine camps other than those controlled by coal companies, and non-company-owned housing that is not a part of any mine camp, the restrictions on rentals as determined in wage agreements are not applicable, and the cost of rentals for such homes will average about \$5 higher. Where housing in camps has been sold by the coal operators to investors or speculators, the price was usually a fraction of the original construction cost, and rentals charged by the new owners can profitably be kept at wage agreement levels. In western Pennsylvania, an individual purchased an entire group of 80 houses for \$8,000. He now collects \$9,600 in rents annually. These homes are in such a poor condition that, in more normal times, they probably would not be rentable at all. In spite of the high return, there is very little maintenance work.

The following tabulation shows the rents on company-owned houses prevailing in 1946 in 10 coal-producing States. These figures are based on a total of 766 houses where house rents could be separated from certain utility charges made by the companies. There are instances where coal companies charge a flat rent for houses, "including utilities."

Indications are that the rental figures for company housing at the mines surveyed average about \$2.50 per room per month, approximately the same as the arbitrary \$2.50 rent established in the Appalachian wage agreements. According to table 14, about 90 percent of the houses rent for \$1.50 to \$3.50 per room per month.



TABLE 14.—Average monthly rentals per room per house for company-owned housing

Rental (dollars)	Number of houses	Percent
0.51 to 1.00	1	0.1
1.01 to 1.50	29	3.8
1.51 to 2.00	101	13.2
2.01 to 2.50	259	33.8
2.51 to 3.00	247	32.2
3.01 to 3.50	81	10.6
3.51 to 4.00	42	5.5
4.01 to 4.50	4	.5
4.51 to 5.00	2	.3
Total	796	100.0
Mean	Per room per house	
Median	82.51	2.49

## Leases and Sales

House leases between coal operators and miners usually contain special restrictions and stipulations which make them unusually severe. The following points are distinctive:

1. The lease is automatically terminated when the miner, for any cause whatsoever, ceases to work for the coal company.
2. The lease may be terminated by either party on 5 days' written notice.
3. The company may deduct from a miner's wages for any damage to property.
4. An extra charge of \$2 per day is levied for occupancy of premises after termination of the lease.
5. The tenant must not permit the use or occupancy of the premises by any persons "objectionable" to the owner.

The typical coal operator's lease places the miner in a most insecure position. There frequently occurs in such leases the express language that "this agreement shall not operate or be construed to create the relations of landlord and tenant between the parties hereto under any circumstances whatsoever." Some operators maintain that these clauses are of "no consequence," being "mere form." However, this attitude is inconsistent with the continued practice of including them in leases.

Aside from the ethics of these provisions, the unusual limitations upon domain, and the brief time which the miner is allowed for vacating his house

following termination of his employment, are factors not to be ignored when comparing rentals of company- with non-company-owned housing.

As mentioned before, there is a widespread tendency in some sections in the eastern mining area in contrast to the western coal regions to sell company-owned housing to the individual miner. Several reasons for this are advanced by the operators:

1. The coal company wishes to divorce itself from the real estate business and devote all attention to the mining of coal.
2. Making the miner a property owner and taxpayer will relieve the operator of obligations for installing and maintaining roads, water supplies, sewage- and garbage-disposal facilities, and other public facilities and services.
3. The camps are unprofitable and the company wishes to unload them.
4. Fast, cheap transportation is reducing the necessity for housing close to the mine.

In western Pennsylvania, a mine was surveyed where over 200 dwellings (the entire company town) had been sold to individual employees. Detailed information was obtained on one of these transactions. A two-story, duplex, eight-room tile dwelling, constructed in 1920, was sold for \$700. This included a 50- by 150-foot lot; and, prior to the sale, the company placed the houses in good condition. A nominal down payment was required, the balance being amortized in stated monthly payments of \$20, with a 5-percent-interest charge on the unpaid balance. The \$20 monthly payment also was said by the operator to cover the cost of an unmetered supply of electricity and water. The original cost of the house was not available, but it is estimated to be approximately twice the selling price when built 25 years ago. The present condition of these houses is good. In this particular community, the miners take considerable pride in the ownership of their homes and spend most of their spare time improving and remodeling them. Cordial relations appear to exist between employees and Management.

At a northern Pennsylvania mine, a different condition was noted. The company, after allowing its 40-year-old houses to deteriorate beyond any hope of repair, sold them en bloc to a real estate investor several months ago. No opportunity was afforded the miners to buy. By special arrangement with the operator, the new owner collects the rent by check-off but has advised his tenants that all main-



*Striking contrasts are also observable in privately owned houses. The house in the upper photo is in Pennsylvania; the one in the lower photo is in Oklahoma and is owned by a miner who does part-time farming.*

tenance is their responsibility. No new leases have been signed, and the present owner has terminated all gratuitous rents to widows and disabled miners. One house visited in this particular community was occupied by a recently discharged Marine and his family. He said that, in order to have a suitable place to live, he had spent over \$400 for repair materials alone, although realizing the uncertainty of tenure and the unlikelihood of a chance to buy the house at a fair price.

Cases such as this were noted throughout the eastern coal-mining areas. In some instances, property has been rented for more than 20 years, then sold to a third party without the occupant's being allowed to bid. Such treatment provokes a hostile and defiant attitude, which is conducive to anything but satisfactory Management-Labor relations.

Many employees of the mining industry have preferred to live in the rural areas or in neighboring towns in order to realize their desire for life in more pleasant surroundings. Of the 43 percent of the houses inspected that are non-company-owned, a number are occupied by miners who have built, bought, or rented them by choice. These places often are located considerable distances from the mines where the tenants work. The rented houses usually command higher prices than those in mine camps. Personal initiative and pride have induced these people to take good care of their houses and gardens. The privately owned homes are of all sizes and styles. Ages range from a few months to a century. The general standard compares favorably with that of other houses in the same neighborhoods.

It is interesting to describe briefly the best and the worst observed during the Survey. One home, the property of a miner, is of modern brick construction and excellently designed. It contains 10 rooms and 2 baths. Site and landscaping evidence careful attention to detail and are well-planned. Furnishings are fully consistent with the quality of the house. In the other extreme, a family of 11, including 8 small children, is living in a 3-room rough-board shack on bottom land 4 miles from the nearest village. The house was built by the miner occupant about 6 years ago. Siding is vertical, and no battens are used, so that open joints are apparent between

the boards. The only source of water is a spring about a quarter of a mile from the house. At the time of the Survey a pig was enjoying a siesta in the living room.

When examples are found of progressiveness in company housing, they are as praiseworthy as they are striking. A large operator in Alabama recently completed rehabilitating and modernizing 119 dwelling units at a cost of \$3,000 each. The same company is now building 85 modern homes which will be available for purchase by employees. Not long ago this company erected and sold to miners 11 frame houses with asbestos roof and siding, gypsum-board partitions, concrete floors with asphalt tile covering, and septic tanks for sewage disposal. Each of these houses is splendidly situated on 1½ acres of land in a woodland setting. There is a combination barn and garage. Nearby roads are graveled and well-graded. These houses, of 4, 5, and 6 rooms, sold for \$4,500, \$5,850, and \$5,600, respectively, on a 20-year amortization plan.

Utilization of Federal financing has made possible the development of model mining communities. One such community in Iowa was conceived and agitated to completion by a local priest who was unwilling to look complacently upon the miserable living conditions of his parishioners. Each unit has more than an acre of land, encouraging gardening by which the miner—whose work is particularly seasonal in this section of the country—may supplement his wages.

Federal assistance also led to a non-company housing project in western Pennsylvania, where more than 100 modern, 6-room frame houses have been built and sold for \$3,500. Each property includes 2 acres of land. Fruit trees and shrubbery are abundant. In this region there are other industries and businesses besides coal mining. Very few home purchasers were miners.

### *Bachelor Quarters*

It is customary for bachelors to prefer to live in towns where more recreation is available to them, or to rent rooms in private homes in the camp. In relatively few instances in the northern areas are buildings provided specifically for housing and feeding

bachelor miners. In the southern and western coal fields, bachelor quarters are more common. These are often sizable buildings of frame construction whose furnishings are limited to essentials. Three-story buildings for this purpose are not uncommon. They provide either small private rooms or larger rooms for two occupants. They may contain shower rooms on each floor; or, more often, a wash house is provided adjacent to the main building so that coal dirt will not be carried into the quarters. In a few instances, as many as four sets of quarters exist in one community. It is, however, normal practice for individuals, such as the enterprising wives or widows of miners, to operate the bachelor quarters as a concession. Usually they pay rent to the company

for use of the building. In some places the company leases its building without a charge for rent, and in certain instances the company may make cash payments to concessionaires to assure maintenance of a boarding house or so-called "clubhouse" at the mine site.

The dining rooms in these buildings are operated by the concessionaires. Kitchens are simple but adequate. The food is plain but plentiful, even for a person performing hard manual labor. In a few instances complaints were recorded, but usually the meals were described as adequate or very good.

The cost of room and board to the individual ranged from \$45 to \$60 a month. When compared to the cost of living in rural towns these prices appeared reasonable.

## SANITATION AND WATER SUPPLY

General sanitation and the convenience of a safe water supply have an important bearing on the health and living standards of people. Housing of the best type from the standpoint of construction can mean very little to miners if potable water is not readily and plentifully available to them and their families, and if sewage, garbage, and other waste matter are not disposed of regularly and properly so that the menace of disease from such sources is minimized. Such problems are not peculiar to the bituminous-coal-mining industry. Wherever people reside, whether of one occupation or another, or whether in small or large groups, basic sanitation must be provided. Contaminated water, insanitary privies, sewage, garbage, and other accumulations of waste harbor bacteria and nurture disease-spreading insects and rodents. Consequently, the Survey teams gathered data on the extent and character of the sanitary facilities of the communities in which miners live and on the precautions being taken to prevent the spread of disease.

### *Water Supplies*

The quantity and quality of water supplies for miners and their families vary considerably from one mining community to the next. The most marked differences exist between the water supplies for those families who live in houses situated within

urban communities and those who live either in company camps or in rural areas. The former, in large measure, benefit by municipal water distribution and purification systems and usually have their water supplies piped directly into their houses. Those who live in rural areas—on farms or other relatively isolated places—obviously depend upon individual supplies, such as wells, springs, and cisterns. The miners and their families who live in company camps depend on the local facilities that mine-operating companies have established for them; in these places the greatest range of conditions was observed.

Inasmuch as water is needed to conduct operations at most coal mines, it was not surprising to find that 8 out of 10 among those surveyed had installed water-distribution systems, many of them rudimentary, however, in that they are only large enough to serve the mine and appurtenant structures plus a few houses near the offices or the tipple. At three-fourths of the mines, the water-distribution system is extensive enough to reach some or all of the company houses, in addition to the mine buildings. It was found that water was piped into slightly less than 50 percent of the 1,154 company houses surveyed. At a few camps, where water is distributed to nearly all of the house sites, the hydrants are outside of the house, so that each hydrant may serve two or more families.

The sources of the water used in company houses and privately owned dwellings are manifold indeed. The most common sources for company houses, in the order of frequency, were found to be wells, streams or rivers, impounded mine water, springs, lakes, ponds, and cisterns. Water for privately owned houses was found to come from wells, streams or rivers, springs, cisterns, and the mine, in that order.

A few of the individual wells used by a single family or by groups of families (as is common at some operations) are of the old-fashioned, shallow type open at the surface, where the water is raised by a bucket. More common are shallow or deep wells, cased with tile or steel pipe and with hand pumps.

At several Kentucky, Tennessee, and Alabama mines, families who were using wells for drinking water were observed to be obtaining their washing water from open streams and creeks. The explanation given in such instances was that the drinking water was "hard"; the stream water, they said, was therefore better for washing clothes and bathing. Some of the tenants of one Alabama mine camp stated that they purchased soft washing water from an itinerant peddler at 75 cents a barrelful.

The water supply is a more serious problem in the far West than in the eastern or central mining regions. Several mines were visited in the West where no water is available at or near the site, and makeshift arrangements had been devised to fill the need. In an arid region of New Mexico, a mining company had constructed an adequate supply system employing a reservoir and service lines for distribution. The water is piped 11 miles and then pumped into railroad tank cars and hauled 4 miles more. It is reported that the State water-analysis laboratory has always found that the water delivered to this mining community is safe. At some other places in the West, water haulage is left to the tenants, who carry their supply for domestic use in milk cans, buckets, or other containers, frequently from distant sources.

Water costs to the consumers range from no charge at all in many camps to about \$5 a month where private water companies maintain long distribution lines. These companies sometimes meter all services and charge on a sliding scale for all water used. During the summer droughts, when gardens require frequent watering, the expense is substantial. Many

subscribers are billed a flat rate, based upon the number of outlets—the front footage of the property or the size of the house.

Rivers in the bituminous-coal-producing areas are heavily polluted with sewage, impurities, and mine wastes of all sorts. Mine water, especially from stripping—flowing into streams that eventually find their way into the rivers—has introduced a relatively high percentage of sulfur, plus calcium, iron, and other minerals. Animals kept on the watershed have contributed to the problem.

In one incorporated Illinois town, several sewer outfalls empty into a pasture-land pond within and adjacent to the town. Cattle drink from this pond. A municipal official, when questioned on the matter, replied, "Well, the cows drink the water from this one (pond), so it can't be *too* bad."

Many persons do not know the importance of pure drinking water. The argument often presented is that the water is crystal clear, and since it has been used for years without disastrous consequences it must be safe. Water supply must be judged, not on the basis of what has occurred in the past but what may happen at any time.

One noncompany coal-mining town surveyed had no municipal water supply or distribution system. Houses in the town have individual, shallow wells, with an average estimated depth of not more than 10 feet. The water obtained from these wells is malodorous and contains visible impurities. The potentialities for water-borne disease outbreaks and epidemics are immediately apparent. However, some of the residents said that no one ever got sick from drinking such water.

Only too common is the hillside well, situated downstream, as it were, from an insanitary privy with a pit that overflows during rainy seasons. There is nothing whatever to prevent seepage of the sewage into the source of drinking water consumed by one or more families. Reports of occasional outbreaks of communicable diseases among such groups are quite understandable.

In the 260 communities surveyed, the water supplies of 120 mines were observed to be subject to pollution by industrial waste, mine water, or untreated sewage. Often a few individual wells are distributed through a camp, one well supplying 4 to 8 houses.



*Water is piped into slightly less than half of the company-owned houses observed during the Survey. Tenants of the remaining company-owned houses obtain their water supplies from springs, cisterns, and wells, most often from wells, which are usually supplied with hand pumps.*

Most of these wells have hand pumps only, and all water must be carried in containers for use within the houses. Pumps often are in poor condition. Many State laws provide that the health authorities will inspect private individual water supplies only upon the request of the users. Consumers usually are not sufficiently informed or interested to make such requests. It is safe to say that most of the water from individual wells or springs is never examined for potability. Residents of rural areas, including mine camps, seldom know that it is dangerous to drink untested water.

There is no intention of intimating that all water uncontaminated at its source must be treated before it may be drunk with safety. Nevertheless, chlorination and/or other processing is essential to safeguard any community supply against contamination in a reservoir and in the distribution system where breaks in the line, cross connections, and back-siphonage may occur. A substantial number of the water sup-

plies in camps and other small communities, besides those purchasing water from private water companies or municipalities, is open to suspicion.

Miners and their families living in 134 of 260 communities surveyed are furnished water processed in purification plants, 92 of which are in noncompany communities and 42 in company camps. Of the 134 communities with purification plants of one type or another, the water is rarely—or virtually never—tested in 12; 10 of these are incorporated communities and 2 company camps. According to table 15, water is tested monthly or more frequently in 32, or 76 percent, of the 42 company-owned settlements that have treatment plants, and in 77, or 84 percent, of the 92 public communities that have such plants. In the communities that do not have treatment plants, the residents use water, from wells and other sources, of questionable potability and purity.

Many of the incorporated communities surveyed, which have constructed complete water-treatment

plants, employ processes involving one or more of the following: Prechlorination, coagulation, sedimentation, filtration, softening, post chlorination, and treatment with activated carbon to remove unpleasant tastes. The larger water plants maintain their own laboratories, where a check is kept on the quality of the water produced. Complete records on all phases of water supply are kept by such water plants; copies of the record of water analysis are forwarded to the State health department at the intervals established by the various States. The smaller treatment plants customarily follow the same procedures, except that the plant operator depends upon the State for the desired tests and reports.

All but 14 of the 134 purification plants test for residual chlorine once a month or oftener. Better protection in this respect is accorded the miners residing in public communities, compared with those living in company-owned settlements.

Many individual water systems lack one or more of the following features:

1. Proper planning and design.
2. Adequate supply of water.
3. Protected watershed.
4. Purification process.
5. Efficient chlorination.
6. Proper maintenance.
7. Experienced and efficient operation.

Of the above, the most important is probably the last.

Experience has shown that the way a water-supply system is operated frequently is more important than the type of equipment available. A good operator will produce better water with mediocre equipment than a poor operator with good equipment. In one Pennsylvania community an ailing miner, temporarily unable to work underground, was found running the waterworks—his lack of experience notwithstanding.

Many local water plants are inspected by the State at infrequent and irregular intervals, or not at all. In several camps visited, water had previously been inspected and found polluted. Pumps were sealed until the operator had treated the water in the wells and subsequent testing showed the condition to be improved. The seals were then removed. In the succeeding 6 months no further tests were made; perhaps the water is now safe for use, perhaps it is not.

TABLE 15.—Frequency of bacteriological tests of water supply systems

Ownership and frequency of test	Area					Total
	I	II	III	IV	V	
<i>Company camp</i>						
Daily	1	7	10	0	0	8
Weekly	2	0	0	0	0	2
Monthly	6	15	0	0	1	22
Less often	3	5	0	0	0	8
None	0	2	0	0	0	2
Total						42
<i>Noncompany community</i>						
Daily	16	1	10	1	0	28
Weekly	16	2	2	2	1	23
Monthly	15	4	1	2	4	26
Less often	1	1	2	0	1	5
None	5	0	7	0	0	12
Total						92
Grand total						134

1 No company-owned water system noted in Areas III and IV.

Water from a highly contaminated river is piped through a small treatment plant to hydrants throughout a 60-house camp in Pennsylvania. The mine adjacent to this group has been abandoned, and the treatment plant is no longer operated. Actually, therefore, polluted, untreated river water issues from the hydrants. The only other source of water is a spring at one end of the camp which, at times, has been tested and found to be contaminated. A number of employees of a large mine live in this camp, and all have been warned not to use this water for drinking yet children were seen drinking it during the Survey visit. The State health department does not test this water, as it is not considered a public water supply and tests are not requested by the owners or occupants of the community. Similar cases were noted elsewhere.

Table 16 summarizes State government services for sanitary water control in the 22 major bituminous-coal-producing States. Although State laws provide that health departments of counties and other political subdivisions shall be charged with the responsibility of safeguarding the health of the people, it was observed that enabling funds are not commonly

TABLE 16.—Specific activities rendered by State governments to control sanitation of water supplies

Activity	Alabama	Arkansas	Colorado	Illinois	Indiana	Iowa	Kansas	Kentucky	Maryland	Michigan	Minnesota	Montana	New Mexico	Ohio	Oklahoma	Pennsylvania	Tennessee	Utah	Virginia	Washington	West Virginia	Wyoming
<b>Public</b>																						
Promulgates and/or enforces State laws governing supplies.....	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Approves plans, including treatment plants.....	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B	A	A	A	A
Inspects supplies:																						
a. Periodically.....	B	B	B	B	B	B	B	A	A	B	A	B	B	B	B	B	A	B	B	B	B	A
b. Routinely, but not at regular intervals.....	A	A	A	A	A	A	A			A		A	A	B	A	A		A	A	A	A	
c. Upon request or complaint only.....														A								
Provides laboratory service for testing safety of water.....	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
<b>Semipublic</b>																						
Promulgates and/or enforces State laws governing supplies.....	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B	A	A	A	A	A
Approves plans for installation of systems.....	B	A	A	A	A	B	A	A	C	A	A	A	B	A	B	A	B	B	A	C	A	A
Inspects supplies:																						
a. Periodically.....	B	B	B	B	B	B	B	B	B	A	B	B	B	A	B	A	B	B	A	B	B	A
b. Routinely, but not at regular intervals.....	B	A	B	A	A	B	A	A	A	A	B	A			B	B	B	A		B	B	
c. Upon request or complaint only.....	B		A			A	B		B		A				B	B	B			A	A	
Makes laboratory test of samples.....	B	A	C	A	A	C	C	A	A	A	C	B	A	B	A	B	A	A	A	C	A	A
Condemns and closes unsatisfactory supplies.....	B	A	A	B	A	A	A	B	A	A	A	A	A	A	B	A	B	B	B	A	A	A
<b>Private</b>																						
Inspects supplies:																						
a. Periodically.....	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
b. Routinely, but not at regular intervals.....	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
c. Upon request or complaint only.....	B	A	A	A	A	A	A	A	A	A	A	A	A	B	B	A	B	B	A	A	B	A
Makes laboratory tests of supplies.....	B	B	C	A	C	C	C	C	C	C	C	C	B	B	B	A	B	B	C	A	A	C

Source.—Information from U. S. Public Health Service Reprint 2386, published in 1942.

A, Service available.

B, Service not available.

C, Occasionally upon request or complaint, for special studies, etc.

available and that local health officers, often part-time employees, do not devote enough attention to water-supply sanitation. Most States will collect water samples, examine them, and submit reports upon the request of persons owning the source or using the water; but, according to health officials,

there are so many individual or semiprivate water supplies that it is impossible to cover the field regularly as a matter of routine. Further, requests for these and other public health services in water sanitation seldom are made. Management and the Union have, for the most part, taken no active steps,



# SURVEY OF SEWAGE-DISPOSAL FACILITIES OF MINERS' HOUSES

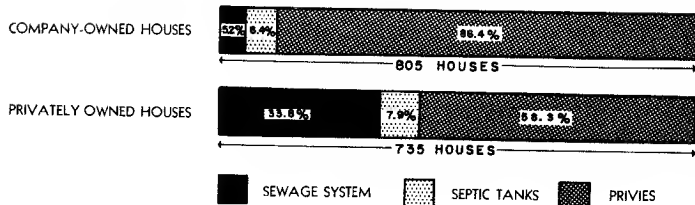


FIGURE 2

either to educate the tenants to appreciate a safe supply of water or to utilize existing public agencies to introduce and maintain sanitary control of water supplies.

## *Sewage-Disposal Methods*

Two hundred and sixty communities were surveyed to determine the methods of sewage disposal employed; such methods were classified as sewage-collection systems, privies, and septic tanks or cesspools. Of the 260 communities under scrutiny, 116 were company camps, and 144 were villages, municipalities, and other places where miners live in groups or with numbers of other residents.

The information obtained reveals that privies are the most common method of disposal in both company-owned or controlled communities and in other

communities; cesspools and septic tanks were the next most common method in company camps but the least prevalent in noncompany communities; integrated sewage systems of various types were found in only 5 percent of company camps but in more than a third of the incorporated communities that were surveyed. (See fig. 2.)

The engineer members of the Survey teams, in connection with their visit to each of the 2,028 houses, scored the sewage-disposal facilities on the basis of their adequacy, regardless of the superiority of one device or method over the other. In other words, a privy that was well constructed and maintained would be marked "Adequate," but a bathroom fixture either poorly designed or poorly maintained would be marked "Inadequate," even though the latter fixture is fundamentally superior. When the data were tabulated according to table 17 it was

TABLE 17.—*Appraisal of adequacy of sewage-disposal facilities of houses, by areas and by ownership*

Area	Company-owned				Non-company-owned				Combined			
	Adequate		Inadequate		Adequate		Inadequate		Adequate		Inadequate	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
I.....	103	51	99	49	233	56	106	42	336	56	207	44
II.....	483	56	380	44	68	49	71	51	551	55	451	45
III, IV, and V.....	51	57	38	43	312	93	22	7	363	86	60	14
All areas.....	637	55	517	45	613	70	261	30	1,250	62	778	38

found that 55 percent of the company-owned houses and 70 percent of the privately owned houses occupied by miners could be regarded as having satisfactorily met minimal requirements for adequacy of sewage disposal. Privately owned houses fared better than company-owned houses, except in Area II, where only 49 percent of the facilities in privately owned dwellings were considered adequate as compared with 56 percent of the company-owned houses.

It is recognized that the well-designed privy is not censurable of itself. Maintained properly, this type of outdoor facility can give satisfactory service, except with respect to personal convenience. Some of the privies inspected had concrete-lined pits; they were of good design, sturdily constructed, and well-maintained. In many places the privy pits were cleaned at regular intervals, or new pits were dug and the superstructure moved. On the other hand, many were poorly constructed or poorly maintained by owner, tenant, or both.

Although 75 percent of the 2,028 houses surveyed in coal camps and other communities had privies, only a relatively small percentage were considered able to meet authoritative standards<sup>2</sup> as to construction, maintenance, cleanliness, and distance from houses and wells. If, however, in view of the difficulty in obtaining construction materials and labor in recent years, only minimum requirements are considered, a larger percentage of the privies observed can be considered satisfactory. The most common deficiencies noticed, in the order of occurrence, were: Lack of cleanliness; absence of covers on seats; absence or disrepair of vents and screening; full or overflowing pits; improper construction of pits; dilapidation of structure; and proximity to drinking-water supplies. The condition of the privies used by occupants of company-owned housing was in every area inferior to that of the privies used by occupants of privately owned houses.

Examples of flagrant violation of the elementary rules of sanitation were observed in connection with the privies used by miners and their families, whether the miners lived in company-owned houses or in houses rented from individuals. At one company

camp, many privies were perched on fairly steep hillsides, behind and above the houses, in such a way that the wastes in the privies could be washed out and drain toward the houses. Seepage from some of these was seen draining toward houses, vegetable gardens, and a well. Stories were told to the observers of tenants cutting holes through the floors of the house to save themselves the trouble of going outdoors to a privy; although such tales could not be confirmed by any evidence in the houses visited, instances were noted where privies were disregarded in favor of the underside of the house or the adjoining woods. At a number of privately owned dwellings in Alabama, pitless privies were seen where organic waste was left to be consumed by prowling dogs, pigs, and poultry.

Devices for sewage disposal, other than privy pits, include (1) cesspools and septic tanks; (2) simple sewage systems where sewage is collected and discharged directly into abandoned mines or rivers and streams without prior treatment; and (3) systems that discharge into rivers and streams after treatment either in simple, large septic tanks or in plants employing comminuters, grit chambers, Inhoff tanks, aerators, primary and secondary sludge-digestion chambers, mechanical and gravity trickling filters, or combinations of such equipment.

Many instances were noted where complete bathrooms were installed in houses, but the hygienic gain was partly offset because the raw untreated sewage was piped directly to the nearest creek. During dry spells when the water level is low, these creeks are actually open sewers, unsightly, odoriferous, public dumps and breeding spots for communicable diseases.

Bathrooms connected with septic tanks or sewage were found most frequently in Area III and least in Areas I and II, source of 75 percent of bituminous-coal production. The majority of people in the industry do not apply the sewage-disposal methods most conducive to better sanitation, comfort, and convenience. In general, it is quite evident that planned sewage disposal according to modern sanitation standards is woefully lacking and that this failure to plan for the community as a whole, or even a large portion of it, is very much more evident in company camps than in public communities. Here

<sup>2</sup> U. S. Public Health Service, *Emergency Sanitation Standards* (Public Health Reports, Dec. 16, 1943).



*The privy is the most common sewage-disposal facility of miners' houses, almost 9 out of 10 company-owned dwellings and almost 6 out of 10 privately owned homes relying on this method. Rows of privies are characteristic of many coal-mining communities.*

again advantage is not taken of the services available from State agencies. (See table 18.)

In sections of the United States where the terrain is rugged and most dwellings are situated along streams and on hillsides, the accumulation of sewage in running water jeopardizes health, reduces safe recreational opportunities, and menaces game and fish. In spite of antipollution statutes, heavy contamination characterizes the rivers that are the main source of water supply. Towns of sizable population, with extensive sewage systems, discharge untreated wastes into open streams that run through adjoining municipalities and villages.

Industrial waste and water used in coal washing are disposed of by dumping them into streams or allowing them to filter away in any manner that will not interfere with operations. Very few plants were noted that utilize any systematic method of treating industrial waste. Even States with pollution laws do not invariably prohibit the introduction of mine

water into streams and rivers. A few companies, recognizing the economy of salvaging solid matter from the coal washings, clarify waste water before disposing of it.

In States that have recently enacted antipollution laws, notably Pennsylvania and West Virginia, a number of towns are planning to construct sewage-treatment plants, but early fruition of these plans is unlikely. The cost of complete installations is large, and no funds have been voted. Protests from taxpayers against assessments are loud and frequent. They would like to have these plants but dislike the expense.

### *Garbage Collection and Disposal*

One hundred and four, or 40 percent of the communities surveyed, were found to be served with some form of organized collection and disposal of garbage and refuse. In 84 of these communities the garbage



*The well-designed privy is not censurable of itself, but many are insanitary. The big problems arising from the use of this facility are infrequent repair, improper maintenance, and abuse by users.*

TABLE 18.—Specific activities rendered by State governments to control sanitation of sewage-disposal systems.

Activity	Alabama	Arkansas	Colorado	Illinois	Indiana	Iowa	Kansas	Kentucky	Maryland	Michigan	Missouri	Montana	New Mexico	Ohio	Oklahoma	Pennsylvania	Tennessee	Utah	Virginia	Washington	West Virginia	Wyoming
<b>Public</b>																						
Promulgates and/or enforces State laws, etc., in municipalities.....	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Approves plans for installation and extensions.....	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B	B	A	A	A
Inspections:																						
a. Periodically.....	B	A	A	A	A	A	A	A	A	A	A	A	A	A	B	B	A	A	B	B	B	A
b. Routinely, but not at regular intervals.....	A										A	A			A	A			A	A	A	
c. On request or complaint only.....																						
Provides laboratory service for testing adequacy of sewage treatment.	A	A	A	A	A	A	A	B	A	A	A	A	A	B	A	A	A	B	B	A	A	A
<b>Semipublic</b>																						
Promulgates and/or enforces State laws, rules, etc., in industries.....	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Approves plans for installation of sewage-disposal facilities (camps, industries, etc.).....	B	A	A	A	B	A	A	C	A	A	A	B	A	B	A	B	B	B	A	C	A	A
Inspections:																						
a. Periodically.....	B	B	B	B	B	A	B	B	B	B	B	A	B	A	B	A	B	B	B	B	B	B
b. Routinely, but not at regular intervals.....	B	B	A	B	B	A	B	A	B	A	A		A		B		B	A	A	B	A	A
c. On request or complaint only.....	A	B		A	A		B		A						A		A			A		
<b>Private</b>																						
Inspections:																						
a. Periodically.....	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
b. Routinely, but not at regular intervals.....	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
c. On request or complaint only.....	B	B	A	A	A	A	B	A	B	B	A	B	B	B	A	B	A	A	A	A	B	A
<b>General</b>																						
Engage in activities to control stream pollution from:																						
a. Municipal waste.....	B	A	A	A	A	A	A	A	A	A	C	A	A	A	A	A	A	A	B	A	A	A
b. Mine drainage.....	B	A	A	A	A	A	A	A	A	B	A	A	A	A	A	B	B	A	B	B	A	A
c. Industrial waste.....	B	A	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B	A	A	A
d. Other wastes.....	A	A	B	A	A	A	A	A	B	A	B	A	B	A	A	B	B	A		B	A	B

Source.—Information from U. S. Public Health Service Reprint 2386, published in 1942.

A, Service available.

B, Service not available.

C, Occasionally, upon request or complaint, etc.

was collected once a week or oftener, whereas in 20 it was collected less frequently, usually during alternate weeks. It was found that in many of the camps owned and operated by the larger and more progres-

sive companies the operator provides the service, without charge to the residents, once a week or more frequently. In a few instances this service is extended to persons living in villages not owned by

the company. In some company camps arrangements have been made under which an individual, acting as a contractor, collects garbage for a fixed monthly charge to the tenants.

Of the 116 surveyed camps owned by coal companies, 35 percent have regular collections by the operator and 3 percent by contractors. In the 144 communities that are not company-owned, 28 percent have collections by municipalities, 12 percent have contract collections, and 2 percent have collection services operated by the mining companies. All other garbage disposal is handled by individuals.

In 156, or 60 percent, of the communities sur-

veyed, no type of organized collection was available to the residents, who, therefore, were obliged to devise their own methods of disposal. The Survey disclosed that in 62 percent of the company camps and in 58 percent of the public communities the problem of disposal was left entirely to the individual tenants.

Since so great a percentage of the communities visited leaves the problem to the householders, attention was devoted to the manner in which this problem was met. The methods were found to be many and varied, in accordance with the preference of the individual. Often garbage was thrown from



*A common place for disposal of garbage and trash is the stream that runs through or alongside the company camp, as in this community, where a slow-moving stream runs between the rows of houses.*



*Garbage collection in a company-owned camp where the service is regular—at least once a week. Periodic, organized collections of garbage were found by the Survey to be maintained at less than 40 percent of the company-owned communities.*

cars along the road, perhaps into valleys, streams, or abandoned strip pits about the countryside. Frequently it was buried in shallow pits or fed to chickens or pigs. At best it was burned on the premises and at worst it was left lying in the yard, sometimes close to the house. In a few of the camps where no regular collection service is offered, certain persons collect garbage free for use in feeding pigs, but these collections are not made at regular intervals, are not available to all tenants, and, therefore, are not considered an organized service.

If garbage and other waste materials are removed by organized collections, they are generally disposed of suitably. The best system of disposing of garbage is by burning it in a properly designed incinerator, so that consumption is rapid and complete. It was found that, of the 116 company-owned communities

surveyed, only 3 percent burn garbage in incinerators, whereas 14 percent of the other communities dispose of their refuse in this manner. In one case a coke oven was giving good service as an incinerator. The odors from the incinerator were little worse than those from the burning slate pile. Another satisfactory method of garbage disposal, used by a few communities, is burial in sanitary fill, where wastes are deposited in layers in a trench and covered with earth or slate each day. Less desirable is the practice of merely dumping garbage in open places or of burning it in the open in large quantities, where the process is slow and incineration incomplete, so that insects swarm over the remains in warm weather and rodents in all seasons. In 150 communities garbage was dumped by the collecting agencies, individual families, or both.

## WASH HOUSES

A very important sanitary facility for the employee who is required, as is the coal miner, to work under dirty conditions is a wash and change house. Before 1920, little provision was made for such a facility in many States; but in recent years, with advances in knowledge of sanitation and personal hygiene and with greater public interest in the miner's welfare, considerable attention has been given to providing accommodations adjacent to the mine portal where the miner can remove his coal- and sweat-impregnated clothes, bathe thoroughly, and dress himself in clean street clothes before departing for his home at the end of the day's work.

During the Survey, the existence or the absence of a wash and change house and the degree of provision made for it were among the most impressive observations. Those who are unfamiliar with the method of using this facility should be informed that a miner reporting for work where there is a wash and change house immediately goes to it, removes his street clothes, attaches them to a chain, and deposits shoes and personal belongings from his pockets in a metal basket attached to the chain. These articles are then hoisted by the chain to the overhead or ceiling of the building, and the miner dresses himself in the working clothes that had been hanging on the chain since his last shift. At other mines, lockers are provided instead of baskets and chains. Upon leaving the portal of the mine, the miner again goes to the wash and change house, removes his dirty, grimy, wet clothes, and deposits them in a locker or hoists them on a chain to the overhead, where they will dry for the next 16 hours or until he again returns to work: If the wash and change house is well-equipped, he then goes into a separate compartment; bathes himself with plenty of hot and cold water and soap under a shower; dresses in his street clothes, which had been left behind when he went into the mine; and leaves, clean and refreshed.

As this Report discloses, relatively few homes have bathroom facilities. Where they do not, and where there is no wash house at the mine, the grimy miner must have water heated for him to take a bath at home. In many instances, if he washes at all he must

squat uncomfortably in a galvanized wash tub or sponge himself from a basin.

There are important health reasons for providing wash and change houses. One of those reasons is the exposure to which a miner is subjected when he comes out of the earth, warm and sweaty, and goes outdoors at once, to be exposed to the elements, especially in winter. Sometimes the weather may be so severe that the clothing freezes to his body before he reaches his destination.

A wash house may be an improvised building made of materials readily at hand, or a structure of brick, stone, stucco, or concrete. However, frame or masonry wash houses are in the majority, with roofs usually of composition or metal material, or sometimes of shingles or slate. The climate where the mine operation happens to be influences the type of building and the materials used in its construction. Its size will depend on the number of employees who will normally use it at one time. Too many such buildings now in use have only one entrance, which is also used as an exit. This is not only an unwise, short-sighted condition but a dangerous one. Unless the wash house is provided with an entrance *and* an exit, its construction obviously conflicts with standard fire-safety practices. The better-type wash and change house has at least two compartments—one, the larger, where the man changes his clothing, stores it in a locker, or attaches it to an overhead chain, and the other, the shower room. The former must be kept as warm as possible so that soiled and wet clothing dries. At some mines, there are separate drying rooms for wet clothing.

The water for bathing is heated in various ways, ranging from the old-fashioned, pot-bellied coal stove to central steam heaters or electric heating units. At the 260 mines surveyed, there were 120 wash houses (see table 19), of which 116 had heated water available. The water is derived in 38 instances from industrial sources; in 69 instances from the drinking-water supply; and in 13 instances from sources especially provided for the purpose. In only 64 of all the wash houses observed was the water supply examined for potability. It was ascertained that, in



TABLE 19.—Distribution, by area, of mines with wash houses

Area	Wash house				Total mines surveyed
	Present		Absent		
	Number of mines	Percent	Number of mines	Percent	
I	28	30	4	70	42
II	45	42	12	58	107
III	40	94	2	6	32
IV and V	17	59	12	41	29
Total	120	46	140	54	260

NOTE.—Percentages based on total number of mines for area.

the remaining wash houses, the water is not examined as to safety for drinking or washing. In some wash houses, the equipment was primitive or broken, owing to lack of maintenance and repair. In one case, the lockers were packing crates, and the showers were tin cans with holes punched in them, suspended by handles resting on nails driven into an overhead beam; the water was scooped from a metal barrel heating on a hot coal stove. In virtually all wash houses where automatic showers were provided there was some type of mixing valve connected with the shower heads to regulate the temperature of the water used for bathing. Usually the number of men estimated for the use of a single shower was based upon the number of assigned baskets or lockers in the change house. The percentage of men using the wash house was not determined specifically; however, from the general observations made, it can be deduced that the majority of the miners would use the wash house if they had been assigned lockers or baskets. The number of baskets or men per shower, as determined by the Survey, ranged from 2 to 35, with a majority of mines allowing approximately 15 men per shower head.

The square feet of space in the change section of the wash house is an important consideration. It was estimated that the number of square feet per man found, based upon the number of assigned baskets, ranged from 2 to approximately 35 square feet per man. The largest number of wash houses averaged 4 to 7 square feet per man in the clothes-change section. It has been estimated that 7 square

feet is the minimum space per person in which the miner can change his clothes with any degree of comfort. This minimum allowance scarcely provides an individual with room to turn about or bend over when there are large groups in the change house. Such a condition herds people into a too-confined space. In any new construction of wash houses, ample space and a sufficient number of shower heads<sup>3</sup> should be provided to accommodate all men coming on and off a shift.

The ventilation and lighting of wash and change houses are very necessary considerations. If not adequate by natural means, installation of artificial ventilating systems becomes a requirement. It was observed that the ventilation, in many instances, was inadequate, and when large numbers of men were using the house, body odors were highly offensive.

The Survey investigators noted that the lighting was adequate in 95 of the 120 wash houses studied.

The storage and drying of clothes vary with individual administrative initiative. The too common practice of hanging clean clothes on chains and in baskets alongside dirty clothes of other miners exposes the clean clothes to dirt and infection. The best practice observed was provision of lockers for the clean clothing. Some operators supplied square metal compartments suspended from the overhead to keep clothing separated. The Survey discloses that 67 percent of the 120 wash houses visited had too few baskets or lockers to accommodate the full complement of employees.

It is not amiss to observe that soiled clothing is habitually left in the change house, in most instances unwashed for long intervals. This is a serious breach of personal hygiene and demonstrates administrative weakness.

Few wash houses observed in the Survey were in existence 25 years ago. The greatest number were constructed, (1) 15 to 25 years ago and (2) 5 to 10 years ago, during which latter period there seemed to

<sup>3</sup> Excerpt from American Standard Safety Code for Industrial Sanitation in Manufacturing Establishments, American Standards Association—approved April 1, 1934; sponsored by U. S. Public Health Service.

#### 3.15 WASHING FACILITIES:

(f) One shower bath with ample supply of hot and cold water from one fixture shall be provided for every 15 workers or portion thereof exposed to excessive heat, or to skin contamination with poisonous, infectious, or irritating materials.





*Wash and change houses for miners are required for miners by State laws at mines in all but 6 of the 22 major bituminous-coal States. However, these 6 States, and Pennsylvania which requires wash houses at "wet" mines only, employ more than half of all soft-coal miners. Nevertheless, some operators have installed wash houses even where not required by law. Altogether 42 percent of the larger mines have such facilities, but there are wide variations in the way they are built and maintained. As the photos show, some are large, adequate, well-lighted, well-ventilated, well-equipped, and well-maintained. Others in direct contrast are poorly equipped and neglected.*



be a renewed interest in building them. Those constructed recently are of the better type for the most part—more adequate and more modern— which, in itself, indicates progress in recognizing not only a desirable but a necessary sanitary facility.

It was found that 45 percent of the companies make a check-off charge against miners for using the wash houses. (See table 20.) Of this number, 17 percent have a compulsory check-off charge. In the States in Area III, where the law requires that wash houses must be provided, the employees are not charged for using them. In the other areas, in places where charges are made, the average is approximately \$1.15 a month. In one instance the charge was 6 cents a shift. Where the company makes no charge, operation of the wash houses is financed in various and sundry ways. At one mine, the employees themselves voluntarily contributed a small sum to employ a janitor to take care of the wash house and provide for hot water. At another mine, the wash house was operated as a concession on a profit basis for the concessionaire. There are instances that came to the attention of the engineers making the Survey where the operator or operators contended that the miners did not wish to have wash houses and that, if they were provided, the miners would not use them. However, in those areas where these statements were made, some miners were found to be installing small wash-house facilities in their basements and organizing wash-house clubs which cost them a few cents each working day.

Eighteen of the wash houses inspected had no provision for potable drinking water.

Twenty-one wash houses had no toilet facilities either in the building or adjacent thereto. In the best wash houses, there were modern water-borne toilet systems, even with some toilet facilities compartmentalized. These same well-maintained, modern wash houses had full-time janitor service paid for by the company.

At many mines where there were wash houses, the employees complained that they acquired skin infections of the feet (which they call "athlete's foot") from exposure in the wash houses. This infection is very common where large groups of individuals utilize a common sanitary facility, with bare feet exposed and is not, in any way, confined to miners'

TABLE 20.—General data relating to wash houses in bituminous coal mines surveyed

Area	Wash house								
	Number of miners with wash houses	Adequate		Charge for use		Drinking water available		Toilet available	
		Number of mines	Per-cent	Number of mines	Per-cent	Number of mines	Per-cent	Number of mines	Per-cent
I.....	26	21	75	9	32	22	79	25	89
II.....	45	27	60	38	85	38	84	37	82
III.....	91	23	27	0	0	26	27	21	21
IV and V.....	17	9	53	7	41	16	94	16	94
Total.....	120	80	67	54	45	102	85	99	82

NOTE.—Percentages based on total number of mines with wash houses for area.

wash houses. Because of it, however, the floors of wash and change houses must be maintained scrupulously clean, with periodic disinfection of floor and side-wall surfaces, benches, and any other articles of furniture on which the bare feet may be placed while being washed or dried, or socks changed. The unwashed sock and the infected shoe are ready conveyors of the infection as well as sources of reinfection.

So essential has a wash house been regarded that a number of States have enacted laws requiring owners of mines to provide them. Of the 22 States in which bituminous coal is mined, 15 have included varying requirements for wash houses for employees in their mining laws. In the 7 coal-mining States where there is no legislation pertaining to wash and change houses, only 48 were found at the 134 mines observed during the Survey. Two States make it mandatory that wash houses be provided at all coal mines, and all but 1 of the 23 mines surveyed in those States (Illinois and Oklahoma) were found by the Survey team to have wash houses; the other 13 States have their requirement upon the number of employees or upon the petition of a specified number of employees. The Pennsylvania law stipulates that wash houses must be provided at wet bituminous mines only. It is interesting to note, in a further reference to the Pennsylvania statute, that provision of wash houses

for anthracite mines is not restricted to "wet mines." The laws of the State of Washington provide that the attendant of the wash house is to be paid by fee. Utah has a comprehensive coverage in its requirement that wash houses be provided and is the only State where the law stipulates that toilets shall be installed within the wash house. Kansas requires wash houses at all coal mines, "except longwall, strip mines, and the mines in excess of 600 feet in depth."

Of the 22 States included in the Survey, Alabama, Colorado, Kentucky, Missouri, New Mexico, Virginia, and West Virginia have no State laws requiring coal-mining companies to build and maintain wash houses at the mine sites. Missouri has a law requiring wash houses for lead and zinc mines but *not* for coal mines. The specific law requirements of the 15 other States are summarized briefly as follows (see also table 21):

*Arkansas*.—Must be provided at mines employing 10 or more. Suitable building, conveniently located, equipped with lockers, benches, lights, heat, hot and cold water, showers. Provides specifications, enforcement, and upkeep.

*Illinois*.—Adequate and suitably equipped lockers or hangers, hot and cold water, sufficient number of showers, heat, dressing space—7 square feet per man. Enforcement, maintenance. Applies to all mines.

*Indiana*.—Must be provided on petition of 20 employees or one-third of number if less. Separate from boiler or engine room, cold and warm water, wash bowls, showers, lockers or hangers, dressing space—7 square feet per man—light, heat, ventilation. Penalties for violation or for misuse.

*Kansas*.—Must be provided, all mines. Suitable building conveniently located. Equipped with lockers or hangers, benches, light, heat, hot and cold water, showers. Must be kept in good order. Specifications: 1 shower to each 15 employees. *Does not apply* to mines operated on the longwall system, any mine in excess of 600 feet in depth, or any strip mine.

*Montana*.—Operator shall provide "adequate facilities" at mines employing more than 20 persons.

*Maryland*.—Operator shall provide upon application signed by 60 percent of employees, and shall provide extra wash houses at additional portals when 25 percent of employees on their signed application make such request, provided requisites approved by State Department of Mines. Suitable building, convenient location, sanitary, heated, hot and cold water, showers, lockers. Operating cost to be agreed upon.

*Michigan*.—All mines, to be provided on written request of 20 or more employees or one-third if less. Suitable, separate from engine or boiler room, maintained in good order, lighted, heated, cold and warm water.

*Montana*.—Operator shall provide where more than 12 miners are employed. Suitable building, not engine or boiler house, not over 800 feet from mine entrance. Kept clean and in good order, lighted, heated, cold and warm water, washing and locker facilities for each person. Penalties for violation or misuse.

*Ohio*.—Operator shall provide where requested by 10 or more employees. Adequate washrooms convenient to mine entrance—lighted, heated, warm and cold water, washing facilities. Penalties for violation or misuse.

*Oklahoma*.—To be provided at all mines. Suitable building of sufficient size to accommodate all employees, convenient to mine entrance—hangers or lockers, proper light, heat, hot and cold water, showers. Maintained in good order and sanitation.

*Pennsylvania*.—To be provided for *wet mines*, on petition of 10 employees to the mine inspector. (The 10 employees must work in *wet* places.) Suitable building, for employees working in *wet* places. Convenient to mine entrance. Maintained in good order, properly lighted and heated, hot and cold water, facilities to wash, cost of operation paid by operator. Penalties for violation and misuse.

*Tennessee*.—Operator to provide for mines employing 50 or more. Suitable building most convenient to majority of employees. Equipped with lockers or hangers, benches, and seats, proper light, heat, hot and cold water, and showers. To be maintained in good order, floor space sufficient for use of all employees using it. Specifications for construction and equipment (1 shower to 15 persons). Enforcement and penalties for violation and misuse.

*Utah*.—Operator shall provide for all mines employing 10 or more, a change room with bathing facilities, within a reasonable distance from the mine portal and tipple. Floor space must be 7 square feet for each employee regularly using the change room, lockers or hangers, 1 shower for each 10 employees on each regular shift, 1 toilet for each 100 men. Lighted, kept sanitary, athlete's foot protection. Operator may charge for use.

*Washington (1945)*.—Operator to provide on petition of 60 percent of employees. May charge \$1 a month. Suitable building convenient to mine entrance. Sufficient floor space to accommodate users. Specifications for construction, lockers or equivalent, 1 shower for each 20 men on a shift. Attendant to be paid by fee. Section does not apply where less than 20 are employed or to nonproducing mines.

*Wyoming*.—To be provided at mines employing 20 or more miners. Suitable building convenient to mine entrance, lockers and hangers, benches or seats, proper lights, heat, hot and cold water, showers. Maintained in good order. Floor space sufficient for miners or others using it. Specifications for floor construction and equipment, 1 shower for each 15 employees. Not required unless 60 percent of employees make written request. No charge to be made. Penalties for violation of misuse.

Data collected by the Federal Bureau of Mines in the summer of 1946, as reflected in table 22, and made available to the Medical Survey, show that, of

TABLE 21.—*Provisions of State laws requiring wash houses at bituminous-coal mines*

State	Wash houses required—		
	At all mines	Only where all employees exceed indicated number	Only when provisioned by names of employees indicated
Arkansas.....		30	
Illinois.....	Yes		
Indiana.....			20, or $\frac{1}{2}$ , if less than 20 employees
Iowa.....		20	
Kansas.....	(1)		
Maryland.....			(1) percent
Michigan.....			(1) percent, 20, or $\frac{1}{2}$ , if less than 20 employees
Montana.....		12	
Ohio.....		30	
Oklahoma.....	Yes		10 (art mines only).
Pennsylvania.....		50	
Tennessee.....		10	
Utah.....			(1) percent
Washington.....		20	
Wyoming.....			

(1) Yes, except longwall mines, strip mines, and mines in excess of 600 feet in depth.

2,189 mines employing 25 or more persons each, 926 had wash houses. In 22 bituminous-coal-producing States, 42 percent of the larger mines provided wash houses. Of the major States, Illinois had the highest percentage (96) of wash houses, whereas West Virginia, the largest coal-producing State, had the

TABLE 22.—*Wash houses at bituminous-coal mines employing 25 or more men*

State	Number of mines	Number of mines with wash houses	Percent total
Alabama.....	81	44	54
Arkansas.....	32	30	94
Colorado.....	63	35	60
Illinois.....	178	171	96
Indiana.....	77	42	55
Iowa.....	28	11	39
Kansas.....	13	3	23
Kentucky.....	235	82	35
Maryland.....	15		
Michigan.....	6	6	100
Missouri.....	28		25
Montana.....	10	9	90
New Mexico.....	15	12	80
Ohio.....	173	77	45
Oklahoma.....	26	18	69
Pennsylvania.....	432	170	39
Tennessee.....	49	29	59
Utah.....	19	13	68
Virginia.....	61	28	46
Washington.....	18	12	67
West Virginia.....	608	106	18
Wyoming.....	27	16	59
Grand total.....	2,189	926	42

lowest percentage (18). The Bureau's findings also indicate that, in the States where wash houses are not required by legislation or regulation, such facilities are found oftener at the larger mines, employing more than 100 men, than at the smaller mines, employing 25 to 100.

## DISCUSSION

Readers' interpretations of, and conclusions drawn from, the conditions described herein are not expected to be unanimous. Differences in background and experience, as well as variations in special interest, will go far toward shaping reaction to the foregoing exposition.

Evidence can be carefully selected from the data presented in the Report to show that bituminous-coal miners and their families, as a group, have either a lower or higher standard of living than that of other industrial workers. So wide is the range in extremes, with respect to housing, water supplies, and sanitary

facilities, that the median or average conditions are difficult to determine. It is apparent, however, that only a relatively small percentage of the workers and their families who live in company camps enjoy the facilities and privileges available through residence in the communities established by the more progressive, generally the larger, operating companies. Another small percentage live in company camps that are a disgrace to the industry and to the Nation. The large majority of the mine employees and their dependents living in company owned or controlled communities have a standard of living that is

unsatisfactory in view of the levels attained by numerous families throughout the United States in comparable income classes. That the housing and sanitary facilities in many individual mining camps are not far different from, and in some instances are superior to, those in the immediate vicinity of the camps should not justify their deficiencies. Nor should the general economic instability of the industry in the prewar years stand any longer as an excuse for failure to institute action bringing about much-needed improvements.

The issue is not one of raising or lowering the standard of the miners to the levels of white-collar workers or cotton pickers or any other vocational group. Rather, this study has been grounded on the premise that, all comparisons to one side, coal miners should share as much as possible in the dividends of good living sought by all Americans. It is granted that the deficiencies described are not unique. If a similar survey were conducted among share croppers or itinerant harvesters, it is not unlikely that some conditions would be discovered so deplorable as to make those described herein seem rosy by comparison. In the very Capital of the United States, approximately 100,000 persons<sup>4</sup> still draw their drinking water from yard hydrants and rely upon privies. Yet the lesson to be derived is not that the Nation can well afford, therefore, to take time to ameliorate the condition of the miners but that assistance should and must be extended to all citizens whose living conditions dispute the complacent assumption that man has attained the peak of progress.

Yet the bituminous miners' position would seem to have a measure of uniqueness. What other occupational group does one recall whose wages have increased so much in the last quarter century and yet must contend with so many of the same handicaps that plagued the previous generation at the coal pits? How much better off is a miner, currently earning \$50 or more a week, than he was years ago when he drew \$25 a week? He can now boast little more in basic necessities for healthful, pleasant living. Money is useful only for what it can buy. Comfortable, weatherproof dwellings, sanitary

plumbing, decent sewage disposal, and safe drinking water are purchasable, but seemingly they are reserved for only a fraction of the inhabitants of coal-company camps!

One fact is plain: The housing and sanitary facilities of the miners who do not live in company towns, especially those who live in incorporated communities, are generally better than in coal camps. True, in a number of places the privately owned houses or the houses rented by miners from individuals and real estate operators are vastly inferior to those owned by the coal companies, especially where the noncompany houses are situated on the outskirts of isolated camps; but such instances are in the minority.

The picture of company housing presented in the Report of the United States Coal Commission, which surveyed conditions in the Nation's coal industry 23 years ago, reflects the present situation in a number of respects. The Commission reported:

To a great extent, greater probably than in any other occupation in the United States, they (bituminous coal miners) are dependent on their employers, not only for the conditions under which they work, but also for the character of the houses in which they live, and for the resources and atmosphere of the community of which they are a part \* \* \*. Ninety-five percent of the company owned houses in the 713 communities studied were built of wood. More than two-thirds were finished outside with weather board, usually nailed direct to the frame with no sheathing other than paper, and sometimes not even that \* \* \*. Over two-thirds of the roofs were of composition paper. The houses usually rest on post foundations with no cellars \* \* \*. Wood sheathing forms the inside finish of half the house; plaster of 38 percent. Board and batten houses, the cheapest type of construction, were used in over a fourth of the dwellings in the 713 communities \* \* \*. In the worst of the company-controlled communities the state of disrepair at times runs beyond the power of verbal description or even of photographic illustration, since neither words nor pictures can portray the atmosphere of abandoned dejection or reproduce the smells. Old, unpainted board and batten houses—batten going or gone and boards fast following, roofs broken, porches staggering, steps sagging, a riot of rubbish, and a medley of odors—such are features of the worst camps. They are not by any means in the majority; but wherever they exist they are a reproach to the industry and a serious matter for such mine workers and mine workers' families as are dependent upon the companies for living facilities.

If it is custom and tradition that mine families shall exist in squalor, it is time for that custom and tradition to be abolished. Management, Labor, and the families themselves are at fault for the

<sup>4</sup> Winslow, C. E. A., *Health and Hospital Survey of Metropolitan Washington*, sponsored by Washington Metropolitan Health Council, 1946.

inertia that characterizes the situation—Management because, having instituted the system of the company camp as a logical element in profit venture, it neglected, with notable exceptions, to fulfill the humanitarian obligations of its dual role of employer-governor; Labor, because its overpowering interest in, and concern with, conditions of wages and hours seemingly blinds it to the importance of pressing with equal tenacity for housing and sanitary reforms; finally, the rank-and-file miner, because he tolerates eradicable evils.

It is a gratifying experience, enjoyed only too seldom, to come upon a community whose tidy appearance and modern housing facilities reflect acknowledgment of its obligations by Management. Such examples, when found, are more likely to be the company camps of larger mines having adequate capital. That the less affluent operations cannot afford to put comparable quality and maintenance into company housing is understandable, but explanations and excuses hardly make a porous shanty more livable in midwinter or dubious drinking water more potable at any time of year.

Rentals charged on houses in company-owned camps were established many years ago; and although there has been a gradual increase during the ensuing years, it has not kept pace with the increasing cost of labor and materials or with the increased hourly wages paid to mine employees. Camps which were constructed 40 or more years ago were rudimentary indeed. Erected of green lumber, often cut at the site and unseasoned, their life expectancy was short, probably 20 years or less. It is obvious now that they were destined to be longer-lived. Lumber cost was low, probably not more than \$10 per thousand board feet, and not much material other than lumber was used. It has been difficult to obtain actual costs due to changes in ownership of mines, but there is information to the effect that four-room houses, the size most commonly found in camps, were constructed for very modest sums, about \$600.<sup>4</sup>

It is reasonable to assume that depreciation is anticipated at 5 percent annually, varying somewhat with such factors as climate and standard of maintenance as influenced by the rate of production and life of the mine. Thus, at the end of 20 years from

the date of construction, these structures theoretically will have lost their value. Actually, of course, such houses continue to remain rentable after 20 years and may even be sold at more than the original cost. However, a 20-year period is regarded as customary for amortization of this type of property.

For discussion purposes, there have been chosen three separate, hypothetical cases, each of which is representative of housing conditions observed during the Survey, essentially as described in the following illustrations:

1. Consider first a four-room house built 40 years ago at an original cost of \$600. Amortization over 20 years calls for repayment of \$30 of the principal per year, plus \$15 average yearly interest at 5 percent on the unpaid balance, a total of \$45 a year for amortization and interest. From about 1900 until some time after the First World War, rentals on such housing were established at about \$2 per room per month, so that a four-room camp house brought in a revenue of about \$96 per year. Out of the \$51 remaining after payment of amortization expenses and interest, there remained to be paid taxes, insurance, water charges, road repairs, maintenance expenses, if any, and interest and amortization of the cost of roads, privies, water-supply system, and other facilities, above those required for the industrial plant. Although taxes, insurance, and other recurring expenses have varied greatly between different parts of the country and no accurate average figures have been obtainable, it has been assumed for purpose of discussion that taxes amounted to \$10 per year on each house and insurance to \$2.50. Water costs, where not borne by the tenants directly, averaged about \$12 annually, though here again wide variance is found in different areas. House maintenance often was limited to roof patching, and many houses got no other attention for long periods. During war years, few houses stood vacant except those abandoned as not repairable. Even in other years protracted vacancies were unusual, and since rents were collected by check-off of the miners' pay, bad debts were rare. In certain cases, however, houses were being occupied rent-free by families of miners killed or permanently disabled while at work. Road repairs were kept to a bare minimum, and the cost was very low. Such minor repairs as the filling of

<sup>4</sup> Coal Age, July 24, 1915.



chuck holes were left to individual tenants. Conceivably, then, the operator derived some profit from his housing, as shown below:

Total rent received in 40 years:	
1906-34: 27 years at \$96 per year	\$2,592
1934-40: 13 years at \$120 per year	1,560
	<hr/> \$4,152
Expenses to operator:	
Amortization of principal:	
20 years at \$30 per year	600
Interest:	
20 years at 5 percent	315
Taxes:	
40 years at \$10 per year	400
Insurance:	
40 years at \$2.50 per year	100
Water costs:	
40 years at \$12 per year	480
Loss of rent due to vacancy:	
(2 weeks per year) 40 x \$4.50	180
	<hr/> 2,075
Cost to operator in 40-year period	
Revenue remaining for maintenance, repairs, and other costs and profit over 40-year period	2,077
Average per year	52

It is thus shown that in the 40-year period the owner of this house has had at his disposal, for profit and minimum of maintenance, a sum of \$2,077, or approximately \$52 per year. If, as is here assumed, he puts back little or none of this amount, his property will have depreciated to worthlessness, but he will have made a considerable profit.

2. As a second example, a house of similar construction built about 1919 will be considered.

In the time of World War I, a building boom developed with the opening of new mines and the expansion or others. Building costs advanced considerably. Materials put into new construction were better than those used in the early 1900's. An effort was made to improve the general appearance of the mine community, but the same boxlike four-room architecture prevailed. The cost of construction varied from \$600 to \$800 per detached unit, the four-room type averaging approximately \$750, not including roads, privies, water supplies, clearing and preparation of the site, and other related facilities and services. Assuming, again, only the cost of the house, a negligible maintenance program, and a 20-year period of amortization, comparable figures over the 40 years since construction would be as follows:

Rents received through 40 years:	
1919-33: 14 years at \$96 per year	\$1,344
1934-59: 26 years at \$120 per year	3,120
	<hr/> \$4,464
Expenses to operator:	
Amortization of principal:	
20 years at \$37.50 per year	750
Interest:	
20 years at 5 percent per year	344
Taxes:	
40 years at \$10 per year	400
Insurance:	
40 years at \$2.50 per year	100
Water costs:	
40 years at \$12 per year	480
Loss of rent due to vacancy:	
(2 weeks per year) 40 x \$4.50	180
	<hr/> 2,304
Cost to operator over 40 years	
Revenue remaining for maintenance and profit over 40-year period since construction	2,160
Average per year	54

Here again it is seen that, if only superficial charges are expended over the 40 years of occupancy, although the house was consequently worthless at the end of the period, a considerable sum might be realized by the operator.

In the cases of the first two examples, the matter of assuming little or no maintenance charges is not purely arbitrary, but based upon observation and technical evaluation of a considerable number of camps where such practice must have been the rule rather than the exception. However, even if the operators of those camps had put back into their properties maintenance at the rate of 2½ percent annually, they still would have had credits, in amounts of \$1,477 and \$1,410, respectively, over 40 years of occupancy of the \$600 and the \$750 houses.

3. As a third and contrasting example, there may be considered a house built in 1926. By this time, according to the records of one coal producer in the Northern Appalachian area, costs of labor and material had risen considerably, and, together with a trend toward construction of a better class house, had caused the cost of a structure of the type and size herein discussed to be increased to about \$2,000. Meanwhile, the rent received had increased only about 25 percent. If, as frequently was noted to be the case, these newer houses were properly maintained, the operator would have expended at least 2½ percent annually on their upkeep. Upon this basis, and projected for 20 years beyond the present date, the operation and rental of such a project

result in a deficit rather than in a credit, as seen from the following analysis:

Rents received through 40 years:	
1920-34: 7 years at \$90 per year	\$672
1935-46: 13 years at \$120 per year	1,560
	\$4,632
Expenses to operator:	
Amortization of principal:	
20 years at \$100 per year	2,000
Interest:	
20 years at 5 percent per year	1,050
Taxes:	
40 years at \$30 per year	1,200
Insurance:	
40 years at \$7.50 per year	300
Repairs:	
Estimated 2½ percent of cost per year	2,000
Water costs:	
40 years at \$12 per year	480
Loss of rent due to vacancy:	
40 years at \$5 per year	200
Expenses to operator over 40 years	7,230
Net operating deficit over 40 years	2,598
Average per year	65

In this case, however, due to the continued maintenance of the house, the normal depreciation would be reduced proportionately by the amount of maintenance applied over the 40 years of occupancy. Consequently, for this example it was assumed that net depreciation would be about 2½ percent. Hence, the house may still have a nominal appraised or "book" value at the end of 40 years, thus reducing the net operating deficit of \$2,598 proportionately. However, inasmuch as the operator in this case has maintained his property, it is likely that he will have applied considerable money to the repair, upkeep, and improvement of his roads, water system, and other facilities, thus increasing his deficit over and above the figure shown in this example. Some operators accept this loss to attract more desirable tenants.

In some of the best coal camps, the initial unit costs of homes constructed within the past decade have been as high as \$3,500, even as high as \$5,000 with building materials and labor costs at current figures; likewise, the cost of maintenance is even greater than 2.5 percent of the original construction cost per year.

It, therefore, appears that in former years a coal operator, by constructing buildings of the cheapest possible class and by keeping maintenance costs to a negligible minimum, might have been able to realize a considerable profit on his housing project.

The operator who maintains his property with little increase in rents and considerable increase in building and maintenance costs finds such a realization of profit virtually impossible. In the latter case, inasmuch as adequate housing is necessary to attract and hold labor, the operator usually absorbs the deficit as part of the operating costs of his mine.

However, from a business point of view the operator is entitled to an equitable rental to cover the cost of building and maintaining his housing and camp site. If, for example, the rental for the \$2,000 house discussed above were raised from \$10 per month to \$22 per month from the present date (1946) to the end of its anticipated 40 years of occupancy, the operator of such a housing project would suffer no appreciable loss and consequently would be more favorably disposed to maintain the facility properly. Such a rate is definitely within the generally accepted standard of monthly rent at 1 percent of the cost of the house and is also within the means of the employee of a mine of the class under discussion herein.

These hypothetical cases have been used to show the wide variation of conditions found and to point out the inequity of basing rentals on an arbitrarily agreed upon figure that has little connection with the quality of the housing or the actual operating cost.

Although many miners have poor housing, their rents are low. The miner pays a smaller proportion of his income for rent than do other industrial workers. He would be much the gainer if he paid a higher rent, commensurate with his income and sufficient to permit and encourage better construction and better maintenance by the operator. Before the advent of good roads and automobiles, company dwellings had to be constructed near the mine. In the future, where new housing is required because the mining property is isolated, sites should be selected with the view of permitting a lay-out consistent with modern recognized standards of community planning. An example of this is to be found in Wyoming, where an operator has erected homes 5 to 10 miles away from three mines and only 1½ miles from a large, well-organized, public community. The miners and their families thus are liberated from the atmosphere of a coal camp and given an opportunity to enjoy the amenities and advantages of a normal community.

When miners' families are distributed through towns and villages whose inhabitants represent other occupations as well, the miner's house is not distinguishable from other private homes. If a person's neighbors live in clean, modern surroundings, it usually follows that he will attempt to conform to the community pattern. Miners living in company camps should make every effort to purchase and improve their houses if prospects of continued employment are favorable and if the houses are in such condition as to make renovation and repair practical.

Evidence is clear that privately owned homes occupied by the owners are of much better quality than those operated by the mining companies. The housing of miners in the Middle West, where company camps are virtually nonexistent, stands out in marked contrast to the general picture presented up and down the Appalachians. An interesting point is that, among the privately owned dwellings, those occupied by the owner were generally neater, better-furnished, and more adequately maintained than those rented. That home ownership offers a keen incentive to good housekeeping was amply demonstrated. Miners are not transients. They do change employers but remain employees of the coal industry. They might just as well be purchasing their homes as they earn, given encouragement and assistance in utilizing Federal and other low-cost financing. Probably an important factor in the miner's reluctance to assume the responsibility is the relatively large size of monthly payments, in comparison with rents that rarely exceed \$25 a month and more often are \$8 to \$12. For many years he has paid these abnormal, disproportionately low rentals for commensurately small return in value received. Both Labor and Management should join in promoting home ownership where economic conditions make it a reasonable risk for the miner.

In many instances, companies have preferred to sell their dwellings to real estate operators rather than offer them to prospective purchasers among their tenants. The commercial buyers may continue to rent the houses in these camps to miners or other individuals or offer them for resale at a generous profit. It is not known whether the mine workers' union has attempted to protect its members against specu-

lators. In one case noted previously, a speculator is receiving an annual rental that surpasses the price he paid for a camp of 80 dwellings. This deal is legal and profitable for the investor; but, nevertheless, it represents exploitation of a segment of the public that should be better able to take care of itself.

It is incumbent upon the Union particularly to encourage the purchase of home sites by its members, where employment seems stable and employment opportunities in the same or other mines, or in other industries, are available in the area. The Union could furnish legal guidance to assure the title of property purchased and possibly lend money at reasonable interest rates. The Union, moreover, could specify that such housing shall conform to minimum standards of location, design, construction, equipment, and sanitation in order to avoid perpetuating the deplorable quarters so common in a number of company camps today.

Most States have sanitation laws on their books, but it is apparent that their enforcement is generally weak. In areas not covered by the building codes of incorporated communities, construction of substandard housing can be prevented only by appropriate State legislation. The Union could perform a great public service by advocating passage of remedial legislation and encouraging members to cooperate actively.

The company house lease differs radically from that customary in rental agreements affecting privately owned real estate. Its disavowal of a normal landlord-tenant relationship is more reminiscent of feudalism than characteristic of the mutual dignity and independence in present-day business contracts. Any person who is dismissed from the mine company service should have a reasonable time—certainly more than 5 days—in which to find new quarters for his family. Leases should definitely delineate company responsibility. Rents should be determined on the basis of local conditions, value of the property, and service to be rendered by the operator. The companies have had enough experience by this time to determine what maintenance costs should be included in the rent. The extent of maintenance service to be provided by the operator should be specified in the lease.

An impressive revelation to the Medical Survey

Group was the fact that six States, in which more than half of all the bituminous-coal miners in the Nation work, do not have laws requiring coal-mining companies to build and maintain wash and change houses at the mine sites; and that another State, Pennsylvania, which is the second largest soft-coal producer, has such a law, but it applies to "wet" mines only.

A disturbing observation also was the apparent inadequacy of many of the wash houses in States having compulsory laws, indicating the need for periodic inspection and enforcement of the laws.

On the other hand, many progressive operators have discharged their obligation to provide suitable wash and change houses, even where legislation has not made such action mandatory, by constructing and maintaining excellent facilities for the use of their employees. In the same States, the less progressive and backward operators have decried the necessity for such facilities and in so doing have further scored the escutcheon of the industry. As a general rule, the adequacy and good maintenance of the wash house at any given mine or its absence reflected a similar condition in housing sanitation and general upkeep of the mine properties. Well-managed properties have good wash and change houses. Poorly managed properties have either poor wash-house facilities or none at all.

In view of the indifference and laxity of many operators, it would seem that the construction and maintenance of suitable wash and change houses can be achieved only through enforceable State legislation. That such wash and change houses should be of sufficient size and contain adequate facilities to accommodate all of the workers who might use them at any one time need not be emphasized. The modern, appropriately designed wash and change house is expected to be well lighted, heated and ventilated, and maintained in sanitary condition; to have hot and cold running water and toilet facilities; to have two or more exits; and to have a sufficient number of lockers or suspendable containers for all mine workers. In the modern, adequate wash houses, at least 7 square feet of floor space is allowed for each man and not less than one shower head is installed for each 15 men employed. The heating installations in such places are always safeguarded so that acci-

dental burning of wash-house users cannot happen, and the spacing arrangements are such that ample space is provided for airing and ventilating clothes. It should not be necessary to add that, in keeping with the custom of other major industries in providing hygienic facilities, no charges should be levied against the employees for the use of, or for the maintenance of, wash and change houses.

Least conspicuous, but not the least important, of the deficiencies that call for corrective action is the water supply. The first step that must be taken is to educate the miners, their wives, and their children to the critical importance of water as a factor that may spell the difference between good health and poor health. The ways of disease-laden water are insidious. Unlike garbage heaps, insanitary privies, and faulty plumbing, water unfit for human consumption gives no warning perceptible to the senses. For that reason, primarily, its menace is never fully appreciated. For the same reason, it will be a formidable task to convince mine families that they must bring full pressure to bear upon Management, Labor, and Government public health authorities, to the end that this matter shall receive the attention it deserves. In the construction of new camps complete water systems, with potable and sanitary supplies tapped into each home, must be installed. Adequate standards of health require such water systems, as well as modern methods of sewage and garbage disposal.

Indeed, the speed and the thoroughness with which all of the handicaps cited in the foregoing—substandard housing, archaic rental practices, insanitary methods of sewage disposal, and haphazard removal of garbage, as well as inadequacies in water supply—are abolished will be proportional to the degree to which the miners themselves become aware of the inadequacies and hazards.

Only when State and county health departments exercise their prerogatives under their several State laws will a broad-scale effort be made to improve sanitation. When the improvident, the shortsighted and greedy, and the indifferent operators reach the levels of farsightedness and understanding of human relations that have been exhibited by the progressive operators, both large and small, more company camps will take on the aspect of decent, modern American communities.

## Public Health



Public health has been defined as the art and science of preventing disease, prolonging life, and promoting physical and mental efficiency through organized community effort. Public health services, including control of sanitation, are basic and fundamental to the promotion and maintenance of the health of individuals. These activities cannot be divorced from the other phases of medical services. They are the concern and responsibility of individuals and communities and not exclusively of Government agencies. Under the circumstances prevailing in

coal-mining areas, where so many communities are unorganized, provisions for public health services are a major problem.

Without the collaboration of members of the medical profession and without the active support of citizens, civic organizations, employees' groups, business, and industry, no public health program can be depended upon to meet local needs satisfactorily and routinely, regardless of the authority and legal responsibility of the administering agency. An outstanding example to illustrate this point is the

isolated coal-mining community where a single physician is the one person whose major interest is health. Many such a community, usually employer-owned and unincorporated, does not share the benefits and protection provided at public expense within municipalities. The physician attending miners and their families in the coal-mining community occupies a key position for promoting public health services and sanitation, provided, of course, that the Government agency or agencies having jurisdiction are prepared to render the services and that the project is actively supported by the community. On the one hand the physician enjoys to a degree the confidence and respect of a majority of families in the community, and on the other hand he is in a favorable position to win the support of Management. His knowledge and opportunities for observing problems in public health, industrial hygiene, and sanitation render him particularly well fitted to serve in a liaison capacity between the miners (including their families) and the public health workers. However, investigation has revealed that quite an opposite state of affairs prevails in most coal-mining communities—where the needs are the greatest, the least has been done.

The Medical Survey of the Bituminous-Coal Industry revealed serious deficiencies in the development and maintenance of public health and sanitation services in a majority of the coal-mining communities. With few exceptions, physicians have not taken advantage of their opportunities to contribute ex officio to such improvements. Mitigating factors include the current shortage of physicians and the overburdening of practitioners.

This section of the report points out the character and extent of coal-area health services by describing programs of local health units, State health departments, the United States Public Health Service, and voluntary or unofficial health organizations. Accordingly, the following brief descriptions of health agencies, with certain data, tables, and maps, form the background for recording the field-survey findings. To roughly indicate the extent of activities and the degree of participation of the numerous health agencies and organizations having similar objectives (many of which overlap in a confused pattern), the relative expenditures of each major

group are included for comparison. The financial data should be regarded as representing index instead of absolute amounts.

The several tables and statistical interpretations that follow show inconsistencies in the time intervals upon which the data are based. The published studies and reports of various official agencies have been employed extensively without attempting to standardize the time elements. Combined statistics for several years have been used in one place to raise the totals to significant values. Statistics for the years immediately before the war—1939, 1940, and 1941—have been given in another place to minimize effects of the war, such as changes in residence and displacement of population. Total population figures are based on the 1940 Census data. Figures for



*Visiting nurse service, useful in instructing mothers in the proper care of infants, is not common in coal-mining camps. Such services, if expanded, would help to lower infant mortality rates.*

the numbers of coal miners in specific areas are based on current information obtained from the Bureau of Mines, United States Department of the Interior.

It should be noted that for official purposes counties, cities, and States generally are used as the basic units for compiling public health statistics. Almost without exception, the available data do not permit a study of a community's health condition in terms of major occupation groups, particularly where more than one industry prevails. Consequently, statistics in several of the following tables represent all persons, including coal miners and their families,

who reside in the areas. Wherever it has been possible to do so, the relative proportion of the coal-mining group to the entire population has been indicated. No attempt has been made to present statistical data by population characteristics, such as color, race, age, sex, and urban or rural residence. In general, the characteristics of coal miners and their families do not differ significantly from others in specific areas, except as to place of residence in some instances. The fact that the great majority live in rural or unincorporated communities must be considered when interpretations are made.

## SERVICES AND THEIR EFFECTIVENESS

It is well known that the State governments and the Federal Government have legal responsibility for protecting and promoting the health of the people. By State authority, certain powers and responsibilities may be delegated to local units of government (counties, municipalities, districts, townships, etc.). Such units participate in health protection in varying degrees, ranging from almost no service at all to a wide variety of preventive medicine and sanitation services. The minimum services, conceded to be inefficient and ineffectual, are represented by the employment of a part-time health officer whose activities are generally limited by his salary, training, and facilities to quarantine duties, the recording of vital statistics, and the investigation of nuisance complaints. This part-time employment which affords minimum services should be viewed with distrust. More adequate services are represented by health departments having full-time professional personnel and facilities for executing well-developed programs suited to the needs of the community.

The essential character of local health services in the United States was emphasized in 1942 by two declarations of similar intent issued within a few months of each other by (1) the House of Delegates of the American Medical Association and (2) the Council of the American Public Health Association. To these were added in 1944 a resolution of the same nature adopted by the State and Provincial health authorities of North America. The United States

Public Health Service has been active in the promotion, development, and support of local full-time health departments. Resolutions of the American Medical Association House of Delegates,<sup>1</sup> June 10, 1942, endorsing the establishment of full-time local health units to serve every area and unit of population, are quoted as follows:

WHEREAS, a major inadequacy in the civilian health protection in war as in peace time continues from the failure of many states and of not less than half the counties in the States to provide even minimum necessary sanitary and other preventive services for health by full time professionally trained medical and auxiliary personnel on a merit system basis, supported by adequate tax funds from local and state, and, where necessary from Federal sources: Therefore be it

RESOLVED, That the Trustees of the American Medical Association be urged to use all appropriate resources and influences of the Association to the end that at the earliest possible date complete coverage of the nation's area and population by local, county, district or regional full time modern health services be achieved.

According to the Emerson report, based on a survey of local public health service<sup>2</sup>—

Only two-thirds of the people of our country are today under the umbrella of full-time local health protection, while approximately forty million are excluded by horse-and-buggy political boundary lines, or by the economic stringencies of the areas in which they happen to live. Yet such is our present situation. Further, the provision of health services, whether full or part time, is now essayed by 18,000 or more counties, cities, towns, villages, or districts. These local health jurisdictions are in-

<sup>1</sup> Journal of the American Medical Association, vol. 119, June 27, 1942, p. 730.

<sup>2</sup> Emerson, Haven, Local Health Units for the Nation: Commonwealth Fund, 1945.



*Drinking-water supply in coal-mining community which is subject to pollution from surface drainage. This spring serves a number of families.*

herited from the past. They came into being, like many good and bad things in a young and growing country, without benefit of policy. We know now that we can afford nothing less than coverage of every population and area unit of our nation with competent local health service.

If this objective, however, is to be achieved during the current shortage of physicians, nurses, and other professional people, steps must be taken to attract qualified personnel to State and local health agencies. Public health officers interviewed during the course of the Survey concur in their opinions that the first essential in such an undertaking is higher salary schedules for professional public health personnel.

Well-organized local public health departments employing full-time personnel serve in controlling communicable diseases and in meeting the local needs for sanitary control of drinking water, sewage, and waste disposal. They provide sanitary supervision of milk (and milk products) and of public eating places. They are responsible for maintaining sanitary conditions of employment. Programs of maternal, infant, and child hygiene, including school health services, are important activities. Public health laboratory services are provided, and vital statistics are recorded and interpreted.



## *Water Supplies and Waste Disposal*

Drinking-water supplies and systems serving coal-mining communities are described in the section of the report on housing and sanitary facilities, with the observations on personnel and operation practices. Medical officers of the Survey teams directed their attention to the adequacy of control measures—the testing of water for purity and the precautions taken to assure it, including fixing of responsibility and supervision.

Making regular and frequent bacteriological examinations to assure a safe water supply is universally accepted and is a basic principle of sanitation. A test to check rapidly the adequacy of purification by chlorination, known as the chlorine residual test, is another widely accepted control measure to assure a safe supply. Conscientious officials and competent persons of authority do not accept responsibility for the safety of a water supply without evidence that these tests are performed regularly, and frequently.

Referring to the section on housing and sanitary facilities, it is noted that 134 of the communities visited were furnished with water processed in purification plants—a group that provides, in general, the safest water supplies among the 260 mines and communities surveyed. However, as indicated in table 15 (Frequency of bacteriological tests), 12 of this group are never tested for disease-producing bacteria, and 13 are tested less often than once a month. By this simple but convincing appraisal, it is plainly evident that at least 18 percent of these “safe” communities have water supplies of suspicious or uncertain quality. Furthermore, 10 percent of this group of water-supply systems are not examined for residual chlorine often enough to assure adequacy of the purification process.

In other communities where water supplies are not processed or where individual wells prevail, control measures for purity are unreliable or entirely lacking; 126 mining communities have water supplies in this category.

*Miner's wife drawing wash water from polluted stream near home. Stream water for laundry is preferred in a number of camps because of hardness of drinking water obtainable from wells.*



Obviously, a large number of water-supply systems are being operated without competent supervision and inspection. The responsibility for a community supply is a dual one, shared by the organization operating the supply and by the public health organization having jurisdiction. The effects of deficient public health programs and of shortages in public health personnel and finances were observed repeatedly when water supply and other phases of sanitation were investigated.

Although the availability of sanitary engineers to each surveyed community was not thoroughly investigated, it was observed that sanitary engineers were providing regular inspections and frequent services in only 15 unincorporated coal-mining communities. Sanitarians or sanitary inspectors were observed in many communities having organized local health services. Instances were noted where

sanitarians were attempting to perform the duties of sanitary engineers without adequate professional supervision.

An epidemic of water-borne typhoid fever at a coal-mining community in New Mexico was described by the local health officer of the area. According to this physician, the water-supply system had been improved, and safeguards had been introduced to prevent contamination after the epidemic. There had been no recurrences of typhoid fever, and the local health department sanitarian considered the water supply at this mining community of several hundred people safe. When the survey was made, a chlorinator was observed at the pump, but it was not functioning nor was it considered an adequate installation for proper chlorination of the supply. The source of the supply was unprotected and subject to contamination.

*A menace to the health of children in coal mining communities is the polluted stream which is used at times by them for wading and play.*



Observations by medical officers on the safety of water supplies and public health measures for controlling water sanitation are almost uniformly alike for the greater part of the areas surveyed. "Subject to pollution" or "Unprotected against contamination" describes the water supplies for a majority of mining camps and mining communities. Where modern municipal water-supply systems served the miners and where Management has accepted its full responsibilities in undertaking to supply water at mines and in company-owned communities, the supplies are adequate and well-protected. In many areas where local full-time health units are active, frequent inspections, enforcement of regulations, and public health education have shown results in protection of supplies and routine testing of water samples.

Observations on the adequacy of sewage-disposal facilities reveal similar and equally dangerous violation of the rules of sanitation. As noted previously in the report, it is common practice to pipe untreated sewage directly to the nearest creek or stream. Employer-owned communities are greater offenders against sewage-disposal sanitation than other communities. Where privately owned houses predominate, sewage-disposal facilities are more often observed to be adequate, especially in Areas III and IV.

Extensive pollution of streams by sewage, industrial wastes, and mine water was observed in the surveyed communities. The dangerous potentials of heavily polluted streams, which are better described as open sewers at many places, can be appreciated by observing the number of nearby unprotected shallow wells in these communities and by watching the miners' children use these streams for wading pools.

A number of the larger mining companies providing adequate housing and modern facilities have given careful attention to safe water supplies, sanitary sewage disposal, and stream-pollution abatement. These commendable features are especially outstanding when observed here and there among the many neglected communities.

Limitations imposed by the time and scope of the survey prevented thorough investigation of water-borne disease in mining communities. No

epidemics or impressive occurrences of disease attributed to contaminated water or insanitary sewage disposal were observed during the brief time spent at individual mining communities. Incomplete and inaccurate reporting of communicable diseases, however, renders statistics unreliable for determining the extent of disease that these insanitary conditions may cause. In parts of West Virginia, Kentucky, Pennsylvania, and Virginia there were indications and reports that the miners in the surveyed communities had a high incidence of "summer diarrhea" or dysentery. Inoculations against typhoid fever are widely practiced in these areas; and it is suggested that, without this precaution, typhoid fever cases might occur in epidemic proportions. In the surveyed communities of Arkansas, Oklahoma, and Alabama, cases of dysentery and hookworm disease were reported prevalent in significant numbers. In a series of coal-mining States selected for study of infant-mortality rates (table 23), certain counties where mines were surveyed showed a significantly higher rate than non-coal-mining counties. It is not contended that insanitary water supplies and sewage disposal are major causes of this higher number of infant deaths, but there are indications that sanitation is a contributory factor.

To believe that epidemics and high death rates are necessary before programs in sanitation and public health are adopted is to discount the value of preventive medicine and to disregard the costly lessons of the past. Unless the barriers against the spread of disease are strong and basic sanitation is maintained, the opportunities for disaster are numerous and ever-present. Contaminated water, heavily polluted streams, insanitary privies, sewage, and waste accumulations that breed insects and rodents are the means by which many of the most serious and highly contagious diseases are spread. Crowded living accommodations and exposure to cold and moisture add to the risk. Hygienic habits, a clean environment, and healthy living cannot be attained where gross neglect in basic sanitation prevails. These conditions were not encountered everywhere, nor were they typical of all areas, but they were observed frequently and in many parts of surveyed areas where employer-owned communities predominated. Since outbreaks of disease can become



*Polluted streams in coal-mining communities. Upper photo: Insanitary privy drains into adjacent creek. Lower photo: Stream polluted by mine wastes and strewn with garbage, an excellent breeding place for rodents and insects.*

epidemics, diseases originating in areas of poor sanitation can be and frequently are spread to cities and to places far-removed from the origin.

### *Milk and Restaurant Sanitation*

Survey findings reveal that in slightly more than half of the surveyed communities the sale of raw milk is permitted in public eating places. According to the United States Public Health Service Report of November 1944 (List of American Communities in Which the Milk Ordinance Recommended by the Public Health Service Is in Effect), only 18 of the 105 counties where mines were surveyed had adopted milk ordinances recommended by the Service. Sixteen of these counties are in West Virginia. The Public Health Service Report shows that in 7 of these 16 West Virginia counties, less than 50 percent of the market milk is pasteurized. Carbon County, Utah, has adopted the Public Health Service ordinance, but only 50 percent of the market milk is pasteurized. Only 8 municipalities among the 260 sampled communities have adopted the recommended Public Health Service milk ordinance. According to this report, in 4 of these cities less than 50 percent of the market milk is pasteurized. The figures cited above illustrate the failures and difficulties in enforcing public health and sanitation regulations.

The counties and cities indicated above, where the United States Public Health Service standard milk ordinance has been adopted, are by no means the only surveyed communities with adequate laws. Many communities and States have ordinances of similar intent and equal adequacy, but control measures and enforcement are serious weaknesses.

Among the 260 communities surveyed, data were obtained on the sale of raw milk at 227 stores serving these communities. At 41, or 18 percent, the sale of raw milk was observed. In Area II, as particularly noted in District 8, pasteurized milk was observed to be available in a number of communities, and the majority of the stores serving coal-mining communities sell pasteurized milk only. Obviously not all fresh milk consumed is sold through the medium of stores. Mining communities surveyed in Ohio were estimated to have about 80 percent pasteurized supplies. The uncertain qualities of milk provided to

mining communities were noted in Iowa, Illinois, and West Virginia. In central Pennsylvania, very little raw milk is sold in public eating places. The majority of the stores in coal-mining communities observed in Alabama and Tennessee sell raw milk. In Area V, the sale and distribution of raw milk were frequently observed, except in Carbon County, Utah, where 50 percent of the marketed milk is reported to be pasteurized.

Pasteurization of milk is known to be a great safeguard against milk-borne diseases. If properly done, it renders the milk safe. Occurrences and epidemics of milk-borne diseases are usually spread by raw or unpasteurized milk. Reports were received during the course of the survey of milk-borne-disease outbreaks in mining communities where raw milk was sold. Several instances of epidemics of streptococcus sore throat and scarlet fever were reported to the medical officers surveying mines in West Virginia, Virginia, Kentucky, and Pennsylvania. Two health officers in Area V stated that the increase noted in the incidence of undulant fever was attributed to drinking raw milk and that cases were occurring in coal-mining areas.

Deficiencies in restaurant sanitation and laxity in control of food handlers were observed frequently throughout the surveyed communities. In West Virginia, it was generally noted that no particular attention was paid to this phase of community sanitation. In Kentucky and Tennessee, it was reported that eating establishments were graded without regard to the physical condition of the food handlers.

In the bituminous regions of Pennsylvania, it was unusual to find restaurants inspected by properly trained personnel.

Except for a few larger mining companies, the food handlers at mine boarding houses are not examined for disease, and the food-handling practices are not subject to regular sanitary inspections.

A food-poisoning outbreak occurred in March 1946 at a Wyoming mine, requiring the hospitalization of nine coal miners, according to a report of the Wyoming State Health Department. The health department investigated the outbreak and reported insanitary preparation of food at the company owned and operated boarding house. Recommendations were made and acted upon for sanitary food handling.



*Vaccination of miners' children who are ready to enter school, a service performed by doctors in many coal mining camps.*

Experience has shown the health benefits that accrue when communities adopt laws or codes, such as the United States Public Health Service standard milk ordinance and the United States Public Health Service code for eating establishments to safeguard milk and restaurant sanitation. Enforcement is a serious difficulty and cannot be expected to achieve satisfactory results unless efforts are made to educate the public regarding the dangers of insanitary milk and food. The highest degree of protection will not be achieved until all communities in the country have taken similar action. The goal can be attained only through the organized and concerted efforts of adequately staffed local health units.

### *Child-Health Services*

The most effective and most important community efforts for promoting individual health are the services to child health. In general, the younger the age group at which the work is started, the more effective the results. Many of the achievements obtainable in improving the health of the children are secured by the "mass" or group method of procedure. The extensive use of school health programs to provide such services as immunization against diphtheria and smallpox, dental and optical care, physical examinations, and health education is an example of "mass" technique. School health services (excluding the

teaching of hygiene classes) were observed or reported to be available in 223 of the 260 surveyed communities. The fact that a few States have compulsory immunization laws for all persons or all children or for children attending public schools has greatly stimulated these activities.<sup>3</sup> Mines were surveyed in certain States that were observed to have effective regulations for protecting children against smallpox and/or diphtheria—that is, West Virginia, Virginia, Pennsylvania, Arkansas, Kentucky, Ohio, Maryland, and New Mexico. In the other 14 States no such laws or regulations for the uniform protection of school children appeared to be in effect.

General observations on the adequacy of these services emphasize the limitations of the programs. Effective follow-up work generally is not pursued, and defects that are discovered by physical examinations usually go uncorrected, unless families take it upon themselves to have them rectified. The shortage of public health and visiting nurses to do follow-up work in these communities is an obstacle in the operation of good school health programs.

Dental clinics as part of school health services where the corrections are made partly or wholly at public expense were rarely observed. A few projects sponsored by civic groups for promoting dental health of children were noted.

Clinics and community projects for improving the health of children in the preschool age group were infrequently observed or reported. Welfare and recreation officers found a very small total number of kindergartens and play schools in all surveyed communities. The unavailability of such schools or centers restricts the development of health services for preschool-age children by "mass" techniques. The public schools have not been utilized generally for this purpose.

In all, 27 clinics for children of all ages were observed or reported in the course of the entire Survey. This figure does not include tuberculosis and venereal disease clinics, nor does it count a small number of health projects for children financed or supported by civic groups, voluntary health associations, and church organizations. Within the surveyed communities, 60 such groups were reported to be sponsor-

ing or financing some phase of health work, such as providing glasses for visual defects, serving hot lunches, etc. It should be noted, however, that a number of such projects are designed primarily for the indigent.

The start made in developing school health services in the great majority of communities surveyed is most encouraging. To expand these programs so that they provide services for preschool-age children, promote effective dental and optical care, render follow-up services for correction of physical defects, conduct tuberculosis surveys, and assure systematic immunization procedures will require full-time public health personnel and the facilities of competent local departments.

### *Infant Mortality*

The number of deaths of infants under 1 year of age per 1,000 live births is recognized as a sensitive index of a community's resources, facilities, and organization for health promotion and medical care, and of its interest in such activities. The infant-mortality rates for certain coal-producing areas (Alabama, Illinois, Kentucky, Pennsylvania, Virginia, and West Virginia) were reviewed in an attempt to discover significant differences between coal-mining and non-coal-mining areas. Each of these States has 10,000 or more coal miners working in the counties in which one or more mines were surveyed. Seventy percent of all American coal miners live within these counties.

Table 23 indicates infant-mortality rates for 1939, 1940, 1942, 1943, and 1944<sup>4</sup> in counties where mines were surveyed in selected States having high coal production. The rates were obtained from the Division of Statistical Research of the Children's Bureau, United States Federal Security Agency. They are based on the number of reported infant deaths per 1,000 live births reported as recorded in Vital Statistics of the United States, Supplement 1940-43, tables 2 and 3, and State summaries of vital statistics. Annual infant-mortality rates for the entire United States are reported as 48.0 in 1939, 47.0 in 1940, 45.3 in 1941, 40.4 in 1942, 40.4 in 1943, and 39.8 in 1944.

<sup>4</sup> Statistical data for 1941 are omitted because of variations in method in reporting and allocating

<sup>3</sup> Public Health Reports, vol. 57, No. 10, March 6, 1942; and Principal Provisions of Smallpox, Vaccination Laws and Regulations in the United States: Reprint 2227, Public Health Reports, vol. 56, No. 5, January 31, 1941

TABLE 23.—Infant-mortality rates, 1939-40, 1942, 1943, and 1944, in selected States and in counties where coal-mining communities were surveyed<sup>1</sup>

Infant-mortality rate (number of infant deaths per 1,000 live births)	
State and county.	Rate
<b>ALABAMA</b>	
Bibb	51.7
Jefferson	53.5
Marion	52.8
Walker	54.5
Counties where mines were surveyed	53.4
All other counties	51.7
<b>ILLINOIS</b>	
Sangamon	54.2
Knox	41.2
Fulton	40.8
Ta. Salle	39.2
Ma. oupin	34.8
Williamson	32.9
St. Clair	26.5
Clinton	21.8
Perry	22.4
Randolph	27.1
Jackson	52.2
Franklin	47.1
Vermilion	37.9
Counties where mines were surveyed	45.8
All other counties	35.2
<b>KENTUCKY</b>	
Bell	50.2
Floyd	47.8
Harian	41.1
Hopkins	46.7
Letcher	45.4
McCreary	47.6
Muhlenberg	45.7
Pike	44.9
Webster	44.9
Perry	44.9
Counties where mines were surveyed	44.9
All other counties	48.0
<b>PENNSYLVANIA</b>	
Allegheny	41.0
Armstrong	40.2
Bedford	44.9
Butler	40.6
Cambria	40.1
Fayette	48.3
Greene	48.3
Huntingdon	45.1
Indiana	49.5
Jefferson	51.2
Somerset	50.2
Tioga	48.6
Washington	44.3
Westmoreland	45.2
Clearfield	42.1
Counties where mines were surveyed	48.4
All other counties	43.5

TABLE 23.—Infant-mortality rates, 1939-40, 1942, 1943, and 1944, in selected States and in counties where coal-mining communities were surveyed<sup>1</sup>—Continued

State and county	Rate
<b>VIRGINIA</b>	
Buchanan	52.4
Du. Lenon	58.8
Lee	53.7
Tazewell	65.1
Counties where mines were surveyed	59.1
All other counties	41.9
<b>WEST VIRGINIA</b>	
Barbour	53.0
Boone	49.0
Brooke	38.3
Fayette	39.4
Greenbrier	56.3
Harrison	55.2
Kanawha	51.1
Logan	52.0
Marion	53.3
Marshall	42.8
Merces	47.5
Mingo	60.5
Morgantown	51.1
Nettwell	52.2
Nicholas	46.4
Ohio	55.5
Raleigh	51.1
Randolph	54.7
Upshur	45.4
Webster	47.8
Westmore	48.2
Counties where mines were surveyed	53.0
All other counties	50.5

<sup>1</sup> Rates provided by the Division of Statistical Research, Children's Bureau, Federal Security Agency.

<sup>2</sup> 24 percent or more of total county population is estimated to be miners and their dependents.

Comparisons between rates for the counties listed and rates for the rest of the State or the State average or the total United States rates show striking differences, which are not consistent, however, for all coal-producing counties within the same State. These rates undoubtedly reflect various factors, such as the presence of larger cities, exceptional hospital facilities, public health activities, and quantity and quality of professional personnel. Comparisons between rates for counties listed and for the other counties in a State are not entirely reliable, in view of the fact that each State may contain a few other coal-producing counties not shown on the list. Despite these variables, it is believed that the rates show general trends on the basis of groups of counties as presented in the table.

It is apparent, that in the selected States, with the



exception of Alabama, the rates in the coal-mining counties are significantly above those in the remaining counties as a group. The small difference in Alabama has no statistical significance. Comparisons between single counties have doubtful significance, owing to the small number of births and deaths. From the evidence presented, it is concluded that there is a general trend, on the basis of groups of counties as shown, toward a higher infant-mortality rate in the coal-mining areas.

The infant-mortality rates for the groups of counties under consideration are interpreted to mean that these areas are lagging in the development of facilities, organization, and standards for medical care and health promotion. There is no direct evidence at hand to prove beyond a doubt that coal miners' children have mortality rates either higher or lower than other children in the same counties. However, conditions in these areas (where the coal-mining population is concentrated) should be carefully investigated by medical and public health organizations.

Public health authorities have made extensive studies of infant-mortality reports. These have shown, in general, that half of the infants in the United States who die in the first year of life succumb during the first 30 days after birth. Prematurity, birth injuries, malformations, syphilis, and epidemic diarrhea of the newborn are among the major causes reported for these early deaths.<sup>5</sup> They emphasize the importance of obstetrical care (including prenatal attention), pediatrics, sanitation, and venereal disease control. Corrective action is a joint responsibility of curative and preventive medicine. The problem must be attacked by public health officials, working closely with private practitioners and hospital administrators.

### *Prevalence of Tuberculosis*

Tuberculosis is held to be a disease that is especially prevalent under conditions of overcrowding and poor housing. Among industrial workers it is most prevalent among those exposed to toxic dusts,

particularly silica dust.<sup>6</sup> Exposure to silica dust is a hazard that has not been proved to affect the great majority of bituminous-coal miners. Tuberculosis mortality statistics for surveyed counties were reviewed, using data compiled by the National Tuberculosis Association and the United States Public Health Service in their publication, *Tuberculosis in the United States; Graphic Presentation* (vol. 4, 1946).

As with all disease statistics, the reliability of tuberculosis mortality and morbidity statistics depends upon the accuracy of diagnosis and the completeness of reporting. Statistics to show the prevalence of certain communicable diseases, such as tuberculosis, in a community are influenced by a third factor—organized efforts to discover cases that are entirely unsuspected or that have never been under a physician's care. Organized efforts in tuberculosis case finding are important parts of a public health program. In recent years, mobile X-ray equipment provided by State health departments and occasionally other agencies is being used extensively for this purpose.

Mortality figures are in most places a more reliable index of the prevalence of tuberculosis than the number of cases reported; in fact, case reporting in some areas is so incomplete that the number of reported tuberculosis deaths is almost as large as the number of cases reported. One index of the effectiveness of public health activities is the ratio of reported deaths to reported cases. Public health authorities recognize a good ratio as one tuberculosis death to five tuberculosis cases.<sup>7</sup> Table 24 shows for 1940 and 1944 the ratio between the tuberculosis deaths reported and the tuberculosis cases reported in the 22 States where mines were surveyed.<sup>8</sup> It should be noted that in a few States (Pennsylvania, Kentucky, Kansas, and Arkansas) during 1944 the ratio was less than 1 : 2. Considerable improvement between 1940 and 1944 is indicated by the ratios shown in the table, and it is presumed that further improvement has occurred

<sup>5</sup> Work cited in footnote 3.

<sup>6</sup> Smith, W. G., *Public Health Administration in the United States*: MacMillan Co., 1940, p. 99.

<sup>7</sup> United States Public Health Service, *The Notifiable Diseases, Prevalence in States—1940*. Pub. Health Reps., suppl. 169, 1941, and *The Notifiable Diseases, Prevalence of Certain Important Communicable Diseases by States—1944*: Suppl. 190, 1945.

<sup>8</sup> Smith, W. G., *Preventive Medicine and Public Health*: MacMillan Co., New York, 1946.

TABLE 24.—Ratio of tuberculosis deaths to tuberculosis cases, reported in 1940<sup>1</sup> and 1944<sup>2</sup> for the 22 bituminous-coal-producing States and for the United States

State	Year—1940			Year—1944		
	Deaths	Cases	Ratio	Deaths	Cases	Ratio
Alabama.....	1,479	2,776	1-1.9	1,230	2,745	1-2.2
Arkansas.....	999	999	1-1.0	780	1,504	1-1.9
Colorado.....	602	602	1-1.0	348	1,212	1-3.5
Illinois.....	3,681	8,574	1-2.3	3,125	7,967	1-2.5
Indiana.....	1,542	1,094	1-1.3	1,161	3,355	1-2.9
Iowa.....	430	589	1-1.4	345	1,279	1-3.7
Kansas.....	447	757	1-1.7	354	680	1-1.9
Kentucky.....	1,942	2,001	1-1.0	1,722	3,182	1-1.8
Maryland.....	1,450	2,567	1-1.8	1,416	3,452	1-2.4
Michigan.....	1,752	6,063	1-3.5	1,748	6,419	1-3.7
Missouri.....	1,710	2,215	1-1.3	1,463	3,416	1-2.3
Montana.....	225	451	1-2.0	167	508	1-3.0
New Mexico.....	384	914	1-2.4	255	6,779	1-2.5
Ohio.....	2,758	5,306	1-1.9	2,752	2,867	1-1.3
Oklahoma.....	1,176	1,661	1-1.4	840	5,448	1-6.4
Pennsylvania.....	4,185	4,276	1-1.0	3,955	4,500	1-1.4
Tennessee.....	2,140	3,399	1-1.6	1,683	219	1-8.2
Utah.....	80	194	1-2.4	60	3,378	1-5.6
Virginia.....	1,551	2,116	1-1.4	1,287	2,204	1-1.7
Washington.....	654	1,617	1-2.5	726	1,680	1-2.3
West Virginia.....	864	1,686	1-2.0	758	76	1-2.7
Wyoming.....	41	50	1-1.2	28	.....	.....
Total.....	29,864	50,787	1-1.7	26,184	62,876	1-2.4
All other States.....	30,499	55,381	1-1.8	27,925	66,051	1-2.4
Grand total.....	60,363	106,168	1-1.8	54,109	128,927	1-2.4

<sup>1</sup> U. S. Public Health Service, the Notifiable Diseases, Prevalence in States—1940. Pub. Health Repts., Suppl. 166, 1941.

<sup>2</sup> U. S. Public Health Service, the Notifiable Diseases, Prevalence of Certain Important Communicable Diseases, by States—1944. Pub. Health Repts., Suppl. 190, 1945.

since 1944. Improvements in treatment measures and in the rate of cure are influences affecting the ratios. Nevertheless, there is evidence that tuberculosis case-finding programs are being neglected in the majority of coal-mining regions, as they are in other areas of many States.

Tables 25 and 26 present the tuberculosis mortality data for the United States and for States and counties where mines were surveyed. Rates for States and counties are averages for the years 1939-41 as recorded in Tuberculosis in the United States, Graphic Presentation, published by the National Tuberculosis Association and the United States Public Health Service. The data represent all forms of tuberculosis deaths reported, by place of

residence of the decedents. Population data are based on the 1940 Census. It should be noted that the rates (deaths per 100,000 population) for the entire United States vary widely from high levels for urban populations (54.6 for 1940) to low levels for rural populations (41.3 for 1940), a factor that is undoubtedly reflected in the county figures. Another factor is deaths in mental hospitals and tuberculosis sanatoria of patients who have been registered therein for over 1 year. They are allocated to the county in which the institution is situated, resulting in a considerable increase in tuberculosis mortality in these counties. The table shows that, among the 105 counties where 83 percent of the United States coal miners live, only 27 counties

have tuberculosis mortality rates that exceed the 1940 total United States rate of 45.9. Referring to the rates of the 22 States, it is noted that 11 exceed the United States rate and 11 are below it. Only 17 counties have rates that exceed the rate for their States. The combined rate for the 22 States is 46.2, as compared to the total United States rate of 45.9. The average for the 105 counties—40.7—is lower than the rates for the other counties, for the States, and for the United States.

TABLE 25.—Average annual mortality rates, 1939-41, for all forms of tuberculosis in States and counties where mines were surveyed<sup>1</sup>

(Deaths per 100,000 population for all races)	
State and county	Rate
<b>ALABAMA</b>	57.6
Bobb	42.9
Jefferson	58.4
Marion	31.3
Walker	59.4
<b>ARKANSAS</b>	81.7
Fagan	88.6
Sebastian	40.9
<b>CALIFORNIA</b>	44.8
Haerfama	49.7
Fremont	42.7
Jefferson	103.1
Mesa	424.0
Moffat	40.9
<b>ILLINOIS</b>	46.4
Clinton	34.9
Franklin	37.0
Fulton	23.2
Jackson	55.2
Knox	24.9
LaSalle	33.1
Macoupin	19.4
Perry	22.8
Randolph	31.7
Sangamon	31.9
St. Clair	35.6
Vermilion	32.6
Williamson	42.8
<b>INDIANA</b>	46.8
Clay	26.3
Greene	36.2
Knox	42.5
Sullivan	24.7
Vigo	33.1
<b>IOWA</b>	17.7
Dallas	18.9
Marion	14.8

See footnotes at end of table

TABLE 25.—Average annual mortality rates, 1939-41, for all forms of tuberculosis in States and counties where mines were surveyed<sup>1</sup>  
—Continued—

State and county	Rate
<b>KANSAS</b>	23.5
Crawford	16.6
<b>KENTUCKY</b>	68.9
Bell	67.8
Floyd	57.9
Harlan	46.1
Hopkins	45.6
Lescher	20.9
McCreary	36.5
Muhlenberg	49.9
Perry	43.2
Pike	52.0
Webster	62.5
<b>MASSACHUSETTS</b>	69.6
Garrett	16.7
<b>MICHIGAN</b>	34.8
Saginaw	41.1
Tuscola	27.1
<b>MISSISSIPPI</b>	47.1
Itates	38.8
Henry	29.9
<b>MONTANA</b>	42.1
Musselshell	27.1
<b>NEW MEXICO</b>	67.1
Colfax	79.2
McKinley	121.5
Santa Fe	46.5
<b>OHIO</b>	42.2
Belmont	25.7
Jefferson	22.4
Perry	27.9
<b>OKLAHOMA</b>	47.3
Coal	49.4
Delaware	50.3
<b>PENNSYLVANIA</b>	42.7
Allegheny	46.9
Armstrong	23.4
Beauford	26.1
Butler	23.2
Cambria	45.3
Clearfield	21.0
Fayette	26.0
Greene	29.8
Huntingdon	38.2
Indiana	18.4
Jefferson	22.2
Somerset	31.0
Tioga	21.9
Washington	32.4
Westmoreland	27.9

TABLE 25.—Average annual mortality rates, 1939-41, for all forms of tuberculosis in States and counties where mines were surveyed<sup>1</sup>  
—Continued

State and county	Rate
TEMPERANCE	78.8
Anderson	33.2
Campbell	67.5
Chalchone	24.1
Sequentine	27.9
UTAH	17.8
Carbon	210.6
VIRGINIA	46.8
Buchanan	42.4
Dickenson	42.1
Lee	54.0
Tazewell	241.7
WASHINGTON	96.7
Kittitas	19.8
WEST VIRGINIA	46.4
Barbour	29.3
Bowie	99.7
Brooke	34.0
Wayne	236.0
Greenbrier	48.4
Harrison	33.0
Kanawha	215.5
Logan	46.7
Marion	65.1
Marshall	62.2
Mt. Dewell	51.9
Metcalf	51.7
Mingo	39.2
Monongalia	51.2
Nicholas	26.3
Ohio	41.5
Raleigh	43.1
Randolph	25.3
Upshur	45.4
Webster	25.8
Wyoming	240.5
WYOMING	17.8
Carbon	13.2
Sheridan	213.8
Sweetwater	6.9
GENERAL AVERAGES	
States surveyed—average rate	46.2
Counties surveyed—average rate	40.7
Other counties—average rate	46.9

<sup>1</sup> Source: National Tuberculosis Association and U. S. Public Health Service, *Tuberculosis in the United States—Graphic Presentation*, Vol. 4, 1946.

<sup>2</sup> 24 percent or more of total county population is estimated to be miners and their dependents.

<sup>3</sup> Mental hospitals.

<sup>4</sup> Tuberculosis sanatoria.

Note.—Deaths in mental hospitals and tuberculosis sanatoria of patients who have been registered therein for over 1 year are allocated to the county in which the institution is situated, resulting in a considerable increase in tuberculosis mortality in these counties.

TABLE 26.—Annual mortality rate for all forms of tuberculosis for 1940<sup>1</sup>

Area <sup>2</sup>	Rate <sup>3</sup>
United States	45.9
Community <sup>4</sup>	
Under 2,500	41.5
2,500 to 10,000	47.7
10,000 to 100,000	42.4
100,000 and over	54.6

<sup>1</sup> Source: National Tuberculosis Association and U. S. Public Health Service, *Tuberculosis in the United States—Graphic Presentation*, Vol. 4, 1946.

These favorable indications, as revealed by a brief and limited review of reported tuberculosis deaths, are open to question, particularly for certain areas. Evidence revealed by the survey of sampled hospitals, especially in Area I, showed that facilities for careful diagnosis are lacking and that post mortem examinations and thorough pathological studies are made infrequently.

The observation that tuberculosis-control measures are not being promoted is supported by the evidence that tuberculosis cases are not being located or reported. Organized efforts for case finding and diagnosis of tuberculosis were not found to be under way in a majority of surveyed communities. The use of mobile X-ray equipment and other case-finding techniques in these communities was not observed or reported, except in Michigan, Illinois, Indiana, Utah, Pennsylvania, and West Virginia. In Area V only one of the six State health departments lacked mobile X-ray equipment, but of these five only one (Utah) had utilized its equipment for tuberculosis studies in the communities that were surveyed.

In one community it was reported that a mine operator had opposed a tuberculosis case-finding program proposed by the county health department. The health officer suspected that the operator wished to avoid the risk of liability for compensation of tuberculosis cases that might be discovered among the miners.

Neither mine operators nor local unions have lent their full support to tuberculosis case-finding and control programs in many coal-mining communities. More serious, however, is the current shortage of facilities, in the principal bituminous-coal-mining States, for the care of tubercular patients.



*A miner's child with tuberculosis of the bone—a type of tuberculosis frequently spread by infected milk.*

## LOCAL HEALTH UNITS

Determining whether or not a community has full- or part-time local health services is a guide that has been adopted for appraising the general adequacy of public health and sanitation programs. This basis of judgment has been used in this Survey, as well as in surveys by others. In the course of making the Medical Survey of the Bituminous-Coal Industry, conferences with State health officers in a majority of States where mines were surveyed revealed general dissatisfaction with the services and health protection afforded by part-time health officers. In fact, the presence of part-time local health officers may encourage a false sense of security by

the belief that a reasonable degree of protection is provided where little or none actually exists.

Map II, showing local public health organization and the distribution of local health units in counties where mines were surveyed indicates in a general way the extent and adequacy of services. It will be noted that there are 24 unorganized counties in contrast to 81 counties having full-time personnel serving a single county unit or several counties on a district basis. Organization on a district basis is frequently sponsored and financed by State health departments using full-time State health-department personnel. The disproportion between the

size of the population to be served in several counties and the limited number of personnel to do the job sometimes renders the district plan less effective than the county plan, especially where the counties are large and the area to be covered is extensive. Some of the effectiveness of individual county programs suited to the local needs may be lost by the administration of multi-county or district plans. It should be noted that 30 counties having district services are shown on the map; 27 are parts of State-operated districts.

Approximately 70 percent of the workers at the mines surveyed live in unincorporated communities. The proportion of miners living in incorporated as compared to unincorporated communities is another indication of the adequacy of local health services, when it is remembered that incorporated communities provide a degree of protection not usually enjoyed by those living outside of municipalities. Ordinances governing public water supplies and milk sanitation, community sewage-disposal facilities, and garbage-collection services are characteristics of municipalities not usually found in unincorporated areas.

Recognizing the importance of public health and sanitation services as functions of units of local government, the availability of such services was analyzed in the 22 States and 105 counties where mines were sampled. On the basis of data in the Emerson report,<sup>9</sup> a comparison was made to determine the per capita expenditures for local health service per \$100 spendable income, public health nursing services per 5,000 population, and sanitary workers per 25,000 population, and the percentage of population served by full-time health officers. It was found that the counties having the majority of surveyed coal mines are not within those States where local public health services have been the most highly developed.

Table 27 indicates 1942 annual expenditures for local health services among States where mines were surveyed, according to data contained in the Emerson report. It also shows those States (16 of the 22) where the average per capita expenditure was less than the United States average of 61 cents per

capita per year. The column headed "Suggested" indicates the expenditures as reported by Emerson that are necessary to provide all areas of each State with full-time local health service for the deliverance of basic and adequate full-time local health service, as stated previously in this section of the Report. Estimates on personnel are based on the approximate needs (using as a guide a community of 50,000) as proposed by the Subcommittee on Local Health Units, Committee on Administrative Practice, of the American Public Health Association.

TABLE 27.—Annual expenditures, existing and suggested, for minimum basic local health services for the United States and for States where mines were surveyed<sup>1</sup>

States:	Existing	Suggested
Alabama <sup>2</sup>	\$1,381,900	\$2,464,400
Arkansas <sup>2</sup>	234,700	1,800,200
Colorado <sup>2</sup>	649,100	1,073,900
Illinois <sup>2</sup>	4,197,200	7,512,900
Indiana <sup>2</sup>	1,012,200	3,328,100
Iowa <sup>2</sup>	222,200	2,222,700
Kansas <sup>2</sup>	486,900	1,755,900
Kentucky <sup>2</sup>	1,321,800	2,594,500
Maryland <sup>2</sup>	1,300,600	1,642,800
Michigan <sup>2</sup>	5,371,100	5,165,400
Missouri <sup>2</sup>	1,719,500	3,721,300
Montana <sup>2</sup>	227,000	964,000
New Mexico	260,200	808,600
Ohio <sup>2</sup>	4,049,100	6,638,800
Oklahoma <sup>2</sup>	739,300	2,236,800
Pennsylvania <sup>2</sup>	4,884,700	9,334,500
Tennessee	1,862,600	2,616,200
Utah	376,600	555,200
Virginia <sup>2</sup>	1,303,500	2,646,500
Washington	1,125,800	1,735,000
West Virginia <sup>2</sup>	626,900	1,829,700
Wyoming <sup>2</sup>	103,600	262,900
Total:		
22 States	32,892,200	62,507,800
48 States	77,262,600	127,391,000

<sup>1</sup> Sources: Emerson, Haven, Local Health Units for the Nation, Commonwealth Fund, 1945.

<sup>2</sup> States spending less than average of 61 cents per capita for local public health services per year.

For a community of 50,000 persons it is estimated, according to the Emerson report, that:

There will be needed one full-time professionally trained and experienced medical officer of health, a full-time public health or sanitary engineer and a sanitarian of nonprofessional grade, ten public health nurses, one of whom would be of supervisory grade, and three persons for clerical work. It is expected that part-time medical services will be needed in most such units of population for diagnosis and control of tuberculosis and venereal diseases, and for prenatal, infant, preschool and school health services. It is assumed that specialist or consultant and advisory

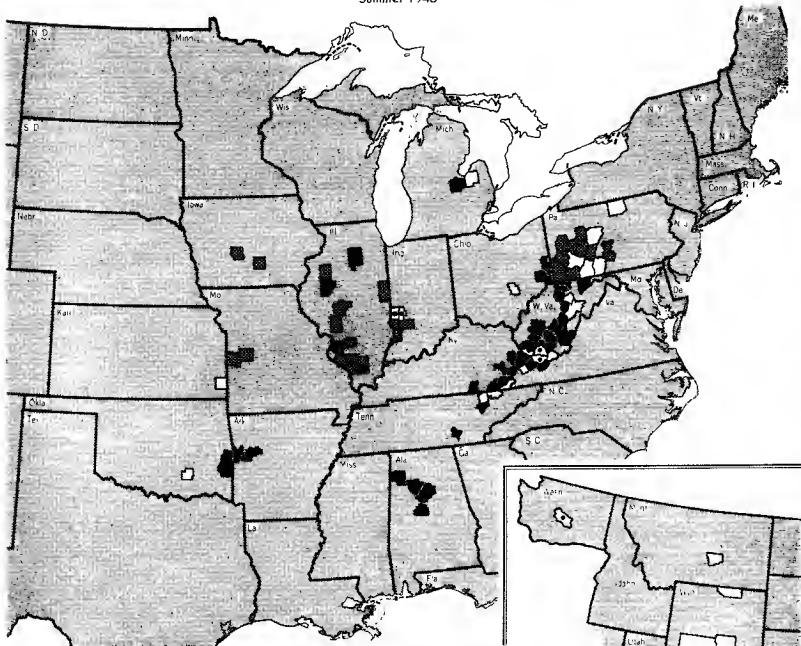
<sup>9</sup> Emerson, Haven, Local Health Units for the Nation: Commonwealth Fund, 1945.

# LOCAL PUBLIC HEALTH ORGANIZATION

as of January 1, 1945

## COUNTIES SURVEYED BY MEDICAL SURVEY GROUP

Summer 1946



- County, county-city, or local district public health organizations having full time health officers.
- Counties within State public health districts administered by States or served by State public health personnel
- Counties not organized and not having full-time public health officers
- Counties that have been organized since January 1, 1945

Source: Directory of Full Time Local Health Officers, revised to January 1, 1945, reprint No. 2608, Public Health Reports, Vol. 59, No. 37, September 15, 1944. Current information provided by the Children's Bureau, Federal Security Agency

services will be available to such a local health department from the state health department in statistical procedures, in public health engineering, in public health laboratory work, in epidemiology, for veterinary purposes, for dental health, for health education and for other local health services.

These suggestions as to the numbers and proportions of the various categories of personnel for local health departments of different sizes of population and area are intended to serve as a guide for the average community. Wide variations in the needs of the several types of professional, technical and other personnel are to be expected and will always depend upon peculiarities of local problems, resources and traditions.

These estimates on needs have been approved in principle or accepted as desirable by the health officers of 37 States and the District of Columbia.<sup>10</sup>

References made above to the Emerson study and its recommendations stress the importance of the local health-service problem and the necessity of having a master plan to achieve coordination in the extension and establishment of local health services. Without such a plan, it is likely that there will be further overlap in functions and a more confused pattern of responsibilities and authority as local and State health services continue to develop. That it has direct application to coal-mining communities is illustrated by observations recorded below and by map II, showing 24 counties where there are part-time or unorganized local health departments. Certain other counties shown on the map within areas having full-time personnel are known to have inadequate numbers of public health workers.

Table 28 is based on information reported in November 1946 to the Children's Bureau, United States Federal Security Agency. It shows the number of public health nurses employed by official health agencies, by departments of education, and by voluntary agencies in the counties where mines were surveyed, with the exception of 14 counties where complete information was not obtained. Total county populations have been presented in the table. The figures for number of nurses include a few who are employed on a part-time basis. It should be noted that 13 counties have no public health nursing service. This figure includes counties where there are vacant positions. Further, as shown in the table, there are 19 counties, including counties hav-

ing vacant positions, where there are no public health nurses employed by official health agencies. The table shows that 49 counties have no public health nurses employed by departments of education and that 64 counties have no public health nurses employed by voluntary agencies. These figures indicate serious shortages when it is remembered that one public health nurse per approximately 5,000 population is generally accepted as a minimum requirement. Among the 91 counties where complete information is available, only 5, or 5.4 percent, meet this requirement if school nurses and nurses provided by voluntary agencies are included with official public health nurses. Only 26 counties, or about 28 percent have 1 nurse per 10,000 or less population.

TABLE 28.—Ratio of population to public health nurses employed by local agencies in States and counties where mines were surveyed

State and county	Total county population, 1940 Census	Number of public health nurses employed by—			Ratio of population to each public health nurse
		Official health agencies	Departments of education	Voluntary agencies	
<b>ALABAMA:</b>					
Bibb.....	20,055	1	0	0	20,055
Jefferson.....	459,930	50	1	9	7,666
Marion.....	27,654	1	0	0	27,654
Walker.....	64,201	1	0	0	64,201
<b>ARKANSAS:</b>					
Logan.....	25,967	0	0	0	(?)
Sebastian.....	62,809	5	1	0	10,468
<b>COLORADO:</b>					
Fremont.....	19,742	1	0	0	19,742
Huerfano.....	16,088	1	0	0	16,088
Jefferson.....	30,725	2	2	0	7,681
Nesca.....	53,791	1	2	0	11,264
Moffatt.....	5,086	0	0	0	(?)
<b>ILLINOIS:</b>					
Clinton.....	22,912	1	(?)	(?)	(?)
Franklin.....	53,137	1	2	(?)	(?)
Fulton.....	44,627	7	1	1	4,959
Jackson.....	37,920	(?)	1	(?)	(?)
Knox.....	52,250	3	2	2	7,464
La Salle.....	97,800	8	5	3	6,113
Macoupin.....	46,304	1	1	1	15,435
Perry.....	23,456	0	(?)	(?)	(?)
Randolph.....	33,408	0	(?)	(?)	(?)
Sangamon.....	117,912	13	4	6	5,127
St. Clair.....	166,899	13	8	10	5,384
Vermilion.....	86,791	(?)	(?)	(?)	(?)
Williamson.....	51,424	1	1	(?)	(?)

<sup>10</sup> Emerson, Haven, Local Health Units For the Nation: Commonwealth Fund, New York, 1945.



TABLE 28.—Ratio of population to public health nurses employed by local agencies in States and counties where mines were surveyed—Continued

State and county	Total county population, 1940 Census	Number of public health nurses employed by—			Ratio of population to each public health nurse
		Official health agencies	Departments of education	Voluntary agencies	
INDIANA:					
Clay.....	25,365	0	0	0	( <sup>1</sup> )
Greene.....	31,330	2	0	0	15,665
Knox.....	43,973	0	0	0	( <sup>1</sup> )
Sullivan.....	27,014	0	0	0	( <sup>1</sup> )
Vigo.....	99,709	4	3	5	8,309
IOWA:					
Dallas.....	24,649	0	1	0	24,649
Marion.....	27,019	1	1	0	13,509
KANSAS:					
Crawford.....	44,191	1	1	0	22,096
KENTUCKY:					
Bell.....	43,812	2	0	0	21,906
Floyd.....	52,986	2	0	0	26,493
Harlan.....	75,275	5	0	0	15,055
Hopkins.....	37,789	2	0	0	18,895
Letcher.....	40,592	1	0	0	40,592
McCreary.....	16,451	1	0	0	16,451
Muhlenberg.....	37,554	3	0	0	12,518
Pike.....	71,122	3	0	0	23,707
Perry.....	47,828	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
Webster.....	19,198	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
MARYLAND:					
Garrett.....	21,091	2	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
MICHIGAN:					
Saginaw.....	130,468	19	0	7	5,018
Tuscola.....	35,694	0	0	0	( <sup>1</sup> )
MISSOURI:					
Bates.....	19,531	1	0	0	19,531
Henry.....	22,318	1	0	0	22,318
MONTANA:					
Musselshell.....	5,517	0	0	0	( <sup>1</sup> )
NEW MEXICO:					
Colfax.....	18,718	1	1	0	9,359
McKinley.....	23,641	2	0	0	11,821
Santa Fe.....	30,826	3	1	4	3,083
OHIO:					
Belmont.....	95,614	3	2	1	15,936
Jefferson.....	98,129	7	4	3	7,009
Perry.....	31,087	1	0	0	31,087
OKLAHOMA:					
Coal.....	12,811	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
Le Flore.....	45,866	0	0	0	( <sup>1</sup> )
PENNSYLVANIA:					
Allegheny.....	1,411,539	22	69	89	7,842
Armstrong.....	81,087	2	2	1	16,217
Bedford.....	40,809	2	3	0	8,162
Butler.....	87,590	3	4	1	10,949

TABLE 28.—Ratio of population to public health nurses employed by local agencies in States and counties where mines were surveyed—Continued

State and county	Total county population, 1940 Census	Number of public health nurses employed by—			Ratio of population to each public health nurse
		Official health agencies	Departments of education	Voluntary agencies	
PENNSYLVANIA—CON.					
Cambria	213,459	3	12	7	9,703
Clearfield	92,094	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
Fayette	200,999	5	4	2	18,273
Greene	44,671	1	2	0	14,890
Huntingdon	41,836	3	1	0	10,459
Indiana	79,854	2	1	0	26,618
Jefferson	54,090	2	3	1	9,015
Somerset	84,937	2	1	2	16,991
Tioga	35,004	1	2	0	11,668
Washington	210,852	4	12	6	9,584
Westmoreland	303,411	5	14	8	11,237
TENNESSEE					
Anderson	26,504	1	0	0	26,504
Campbell	31,131	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
Clatsborne	24,657	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
Squatchie	5,038	0	0	0	( <sup>1</sup> )
UTAH					
Carbon	18,459	2	0	0	9,230
VIRGINIA					
Buchanan	31,477	1	0	0	31,477
Dickenson	21,266	0	0	0	( <sup>1</sup> )
Lee	39,296	0	0	0	( <sup>1</sup> )
Tazewell	41,607	2	0	0	20,804
WASHINGTON					
Kittitas	20,230	2	0	0	10,115
WEST VIRGINIA:					
Barbour	19,869	0	0	0	( <sup>1</sup> )
Boone	28,556	2	0	0	14,278
Brooke	25,513	1	0	0	25,513
Fayette	80,628	3	0	0	26,876
Greenbrier	38,520	0	1	0	38,520
Harrison	82,911	1	3	2	13,819
Kanawha	195,619	6	12	7	7,825
Logan	67,768	2	0	0	33,884
Marion	68,683	6	0	1	9,812
Marshall	40,189	3	3	0	6,698
McDowell	94,354	1	1	1	31,451
Mercer	68,289	1	2	0	22,763
Mingo	40,802	3	0	0	13,601
Monongalia	51,252	4	0	0	12,813
Nicholas	24,070	1	0	0	24,070
Ohio	73,115	3	2	0	14,623
Raleigh	86,687	1	0	1	43,344
Randolph	30,259	0	1	1	15,130
Upshur	18,360	1	0	0	18,360
Webster	18,080	0	0	0	( <sup>1</sup> )
Wyoming	29,774	1	0	0	29,774

Footnotes at end of table.

TABLE 28.—Ratio of population to public health nurses employed by local agencies in States and counties where mines were surveyed—Continued

State and county	Total county population, 1940 Census	Number of public health nurses employed by—			Ratio of population to each public health nurse
		Official health agencies	Departments of education	Voluntary agencies	
WYOMING:					
Carbon .....	12,644	0	1	0	12,644
Sheridan.....	19,255	1	1	0	9,628
Sweetwater.....	19,407	1	0	0	19,407

<sup>1</sup> No nurse.

<sup>2</sup> Undetermined.

Source: Current information provided by Children's Bureau, Federal Security Agency.

The observation made repeatedly in the greater part of all areas surveyed in all sections of the country that local health services (with the exception of school

health services) are not reaching coal-mining communities is explained in part by the total absence of such local governmental service in many such communities. Also, it has been observed that where full-time county health units are serving surveyed communities of the employer-owned type, the public health services of such units are not invariably reaching the coal miner and his family. In all of Areas III and V and in Districts<sup>11</sup> 1, 6, 7, 9, 13, 14, and 15 where 146 communities were surveyed, there were 62 communities that did not have nursing service and 8 where data were not obtained. This supports the observation that local and other public health workers are reluctant to carry on programs in employer-owned communities. Opportunities exist for Management, union organizations, and other unofficial groups interested in health promotion to investigate and correct any misunderstandings that may arise.

## STATE PUBLIC HEALTH ACTIVITIES

Important legal responsibility and authority for health protection are vested in State health departments and other State agencies. Extensive activities involving substantial expenditures are administered by the States in the interest of health and sanitation. According to a 1941 report of the United States Public Health Service,<sup>12</sup> approximately 280 million dollars was expended annually by various State agencies among the 48 States and the District of Columbia. Of this amount, about 126 million dollars was spent by the 22 States included in the Survey. Approximately 80 percent of the larger sum was appropriated by the States; and 7 percent was provided by grants in aid from Federal Government agencies, 8 percent by special fees and donations by voluntary organizations, and 4 percent by assessments by local political subdivisions.

For the country as a whole, the State health departments—the agencies established solely for health work—spend less than one-fifth of the total amount devoted to aggregate health activities by all State agencies.

Thirty-five State activities are recognized by the

United States Public Health Service as having public health significance, illustrating a wide range in diversity and a broad dispersion of activities among many State agencies.<sup>13</sup> The health departments of all States have the major responsibility for the large proportion of State health activities, but other agencies may share the responsibility. To quote from Distribution of Health Services in the Structure of State Government:

Acute communicable disease control is primarily a health department function; yet in some States the department of education is the agency charged with certain regulatory aspects of the program when school children are involved. Field service for tuberculosis control is, with few exceptions, a health department responsibility. Hospitalization of the tuberculous, on the other hand, may be charged to the department of welfare, to a

<sup>11</sup> Districts are set forth in the Bituminous-Coal Act of 1937 as follows: District 1, central Pennsylvania and Maryland; District 6, West Virginia Panhandle; District 7, eastern West Virginia and western Virginia; District 9, western Kentucky; District 13, Alabama and southern Tennessee; District 14, Arkansas and Oklahoma; and District 15, Kansas, Missouri, and part of eastern Oklahoma.

<sup>12</sup> U. S. Public Health Service, *Distribution of Health Services in the Structure of State Government*; Public Health Repts., Reprint 2306, vol. 56, No. 34, Aug. 22, 1941.

<sup>13</sup> Work cited in footnote 12.

special tuberculosis commission, or to a board of control, of institutions, or of affairs. Industrial hygiene programs are frequently split between the departments of health and labor, the former being responsible for surveys, studies, and recommendations for the improvements of conditions leading to occupational illnesses, and the latter being vested with complete authority for ordering corrections. Food and drug control probably represents the most extreme example of multiple-agency organization, for, when the country as a whole is considered, fifteen separate State agencies either singly or jointly participate in some phase of the States' food and drug activities.

The composite pattern of health activity for the 48 States includes contributions of State health departments; of departments of welfare, agriculture, education, labor, mining, conservation, public utilities, engineering, public safety, State institutions, and registration; of boards of control or boards of affairs; of State universities, independent hospitals, and independent laboratories; of special boards, commissions, or independent offices created especially for a particular activity; and of independent licensing boards. For the country as a whole, 48 separate agencies were reported in 1941 by the United States Public Health Service as participating in one or another of the health activities.<sup>14</sup>

#### According to the Health Service:

Dissimilarity characterizes State health department organization, for the number of component bureaus, divisions, and subdivisions—each with a director or chief responsible for the unit's activities—may vary from 6 to 20. Furthermore, no constant plan is followed in the combining of activities when several health programs are administered within a single bureau or division.

However, a few organizational characteristics of State health departments are more or less uniform.<sup>15</sup> There is a basic formation made up of a general administrative office, a public health laboratory, and bureaus of epidemiology, vital statistics, sanitary engineering, and maternity and child hygiene. Laboratory services in blood testing and bacteriological examinations for diagnosis of communicable diseases, provided at Government expense by State health departments, are widely used by practicing physicians and hospitals in coal-mining communities.

The anti-venereal-disease drugs and biologics for diagnosis and control of communicable diseases that are distributed at Government expense are also employed. State laboratory services for water analysis, milk testing, and examination of toxic gases and dusts are important contributions to sanitation that, unfortunately, are not utilized as extensively as they might be by coal-mining communities.

Limitations imposed by time and the scope of the Medical Survey prevent thorough analysis of State health department and other State agency services (as differentiated from local services) that reach, or are intended to reach, coal-mining communities. Even to attempt a summary of health services by State health department divisions or other State agencies is impracticable in view of the confusing dissimilarity of administration among the 22 States.

Because of the complexity of administration in health services which makes efficient and economical operation difficult, coal-mining communities, as well as other areas, suffer.

State health departments are predominantly responsible for protecting the public health except where varying degrees of responsibility and authority have been delegated to local governmental units. It should be noted that all States have laws that permit the establishment of local health units having a considerable degree of autonomy. State laws and regulations usually provide the State health departments with the power of entry into private premises and onto private property to discharge their responsibilities. An exception was noted in one State (Wyoming).<sup>16</sup>

The beneficial influence of State health department programs was observed in the course of the study. In fact, were it not for State health department personnel and facilities, practically no public health services whatsoever would be available at all times in case of an epidemic or other health emergency. In the more populous and wealthy States, the health department programs have reached the local community level even where there has been no particular local interest in the projects. The direct benefits of State services were observed less frequently in

<sup>14</sup> Work cited in footnote 12.

<sup>15</sup> An excellent analysis of State health organization and function in a bituminous-coal State is presented in Colorado Public Health Needs and How to Meet Them, Report of a Study Made by the American Public Health Association, November 1945-March 1946.

<sup>16</sup> According to communication from the Director of State Health Department of Wyoming, the power of entry must be obtained by court order. It has not been necessary to resort to this device.

company-owned communities as contrasted to other mining communities.

State public health programs and sanitary control, as observed generally in the coal-mining industry, reveal deficiencies of many State agencies with respect to stimulating and supporting local health services: in fact, this particular industry and the coal-mining communities can well be called a "blind spot" in the planning of public health programs. School health services (sometimes considered public health services), laboratory services, and communicable disease control programs are exceptions to this generalization. It is recognized that contributing factors are lack of funds and current shortages in personnel. Larger appropriations and increased salary schedules are serious needs. The impression was gained that public health workers are reluctant to devote attention to problems on company property. Moreover, the

general disinterest of Management in seeking State or local health-agency assistance undoubtedly discourages public health workers. Employee organizations, including unions, were not generally observed to be active in promoting and arranging for such services. Neither are mine physicians taking full advantage of the available services. Yet, with only one or two exceptions, State agencies in all the major bituminous-coal States provide, upon request, expert inspection and analytical services in sanitation (such as water and milk supply, and sewage disposal), industrial hygiene, and epidemiology. Consultant services are available also for programs in maternity and child hygiene and general public health nursing. Coal-mining communities would gain materially by availing themselves of the consulting services and the laboratory services that are made available by the public health agencies.

## FEDERAL PUBLIC HEALTH ACTIVITIES

In addition to the United States Public Health Service, other Federal agencies, particularly the Children's Bureau, have functions and activities that bear directly on the health and welfare of the people in coal-mining communities. However, under the laws, except in unusual circumstances, neither the Public Health Service—which is concerned mainly with public health, sanitation, and health education—nor the Children's Bureau—which is concerned primarily with promoting the health, social welfare, and educational advantages of children—can deal directly with local communities or other areas within States. They must operate through State or local health agencies.

These Federal agencies, nevertheless, exert a profound influence upon the quality and quantity of health and welfare services provided by State and local health departments. First, the research they do benefits State and local agencies. Second, consultant services are made available by them; the Public Health Service, for example, assigns upon request a limited number of highly trained public health and sanitation specialists for duty with State and local health departments. Third, excellent

laboratory facilities and analytical services are made available by them, particularly where problems are common to a number of States. Finally, and probably most important, both the Public Health Service and the Children's Bureau are charged with the administration of Federal funds for grants in aid to States for a variety of public health purposes. Significant examples of such grants, which may be expected to be of aid to coal-mining communities, are the following:

1. For tuberculosis control in the 1946 fiscal year—\$6,047,000.
2. For venereal disease control for the fiscal year 1946—\$8,756,876.
3. For assisting State and local health authorities in maintaining sanitation, and providing other health protection in military, naval, and industrial areas for the fiscal year 1946—\$2,615,000.
4. For grants to States' crippled children agencies for extending and improving services for crippled children for the fiscal year 1946—\$3,870,000.
5. For assisting States, counties, health districts and other political subdivisions in establishing public health services, including the training of personnel, during the fiscal year 1946<sup>17</sup>—\$11,467,000.

<sup>17</sup> Division of Public Inquiries, Government Information Service, Bureau of the Budget, United States Government Manual: 1st ed., 1946, p. 388.

As noted above, the State and local health agencies are relied upon in great part to implement the Federal public health programs. By the provisions of the law under which these two agencies operate, few public health services provided by them reach directly local communities such as those where a majority of the coal miners live. Studies and surveys have been made, on occasion, by the United States Public Health Service and the Children's Bureau in coal-mining areas and in the coal-mining industry, but no routine or continuing service program specifically designated for this industry and its people was ob-

served or reported during the course of this Survey.

Except for regulations governing water sanitation on interstate water carriers and similar public health and sanitary control measures—all health matters pertaining to interstate and foreign commerce—directed toward the general public health of the country, the United States Public Health Service does not have the legal authority to enforce its public health and sanitation recommendations at the State and local levels. However, such recommendations may be adopted as regulations and enforced by the action of State or local governments.

## VOLUNTARY HEALTH AGENCIES

Voluntary health agencies also contribute public health services in many communities throughout the Nation. According to a Nation-wide study made in 1945 by S. M. Gunn and P. S. Platt under the direction of the National Health Council, voluntary health agencies are estimated to number something over 20,000, and they differ from other types of health agencies in that they focus their attention on disease or on physical disabilities. They have typically restricted their interest to combatting diseases or classes of disabilities that affect large numbers of people.

The 15 national health agencies,<sup>18</sup> plus their subsidiaries, excluding the American Red Cross, are reported by Gunn and Platt to have raised from the public in 1944 an amount conservatively estimated

at \$48,100,000. Contributions by the voluntary agencies to public health in coal-mining communities are difficult to evaluate under the conditions limiting the scope of the Survey. The activities of these agencies were reported in 86 of the 260 communities surveyed. They function to provide or sponsor visiting-nurse associations, traveling clinics, school-health projects, tuberculosis control, treatment and control of infantile paralysis, care for crippled children, cancer clinics, dental clinics, social hygiene education, and the well-known Red Cross services. Those counties where public health nurses are provided by voluntary agencies are shown in table 28.

Their activities are sporadic and generally of secondary importance in coal-mining communities, as might be expected in view of the fact that they devote attention largely to urban population groups. Visiting-nurse associations, which are found in or near metropolitan centers, were reported to be functioning in 85 of the 260 surveyed communities, but it was exceptional to find routine visiting-nurse services extended to coal miners' families.

The National Tuberculosis Association and its local affiliates were found to be active in coal-mining communities in several areas. Their efforts in education and promotion of local service were observed to be especially intensive in surveyed areas of West Virginia and Pennsylvania.

<sup>18</sup> Gunn, S. M., and Platt, P. S., *Voluntary Health Agencies, An Interpretive Study*; The Ronald Press Co., New York, 1945, lists the following national health agencies:

- American Diabetes Association.
- American Heart Association.
- American Social Hygiene Association.
- American Society for Hard of Hearing.
- Maternity Center Association.
- National Committee for Mental Hygiene.
- National Society for Prevention of Blindness.
- Planned Parenthood Federation.
- American Public Health Association.
- National Organization for Public Health Nursing.
- National Safety Council.
- American Cancer Society.
- National Society for Crippled Children.
- National Foundation for Infantile Paralysis.
- National Tuberculosis Association.

## DISCUSSION

There is no dearth of legislation or numbers of Federal and State health agencies to carry out effective service programs in all the coal-mining areas. What is necessary to meet the needs for the establishment and maintenance of public health programs in many coal-mining communities is, first, the extension of existing services and, second, the development of competent local health departments.

There is a substantial and continuous flow of taxpayers' money to support the numerous health services at all levels of government. Among the three major groups of public health agencies—Federal, State, and local—the largest expenditures are made by the States. According to a United States Public Health Service report, in 1941 the amount spent by the States was estimated at 280 million dollars, of which less than one-fifth was spent by their health departments, the remainder being by other State agencies.

The voluntary health agencies, excluding the American Red Cross (according to the report of Gunn and Platt), raised from the public in 1944 an amount estimated at 48 million dollars.

About 77 million dollars was spent in the 48 States during a recent year for local public health services, according to the Emerson report. State and local expenditures were assisted by Federal grants totaling about 33 million dollars, according to Federal Government reports.

Allowance must be made for the fact that some of the figures cited above represent index rather than absolute amounts and that part of the Federal grants may appear in the totals for State and local expenditures.

Government health service expenditures, according to these estimates, total 390 million dollars; as most Federal public health grants (33 million dollars) are spent by State and local health departments and some of the State expenditures (280 million dollars) are spent by local departments, the true total is less than 390 million dollars of unduplicated money. Despite these impressive figures, public health officials are justified in their contention that appropriations are insufficient for the work to be done. It is of interest to note that an increase of about 50 million dollars in local health service expenditures would provide all 48 States with adequate local health departments and that an increase of about 30 million would provide the 22 bituminous-coal States with adequate local service, according to the Emerson report.

Regardless of the total amount, the fact remains that coal-mining communities are not receiving a proportionate share of the funds being spent and of the public health services already available. Several reasons discussed on the preceding pages are: Too many local health departments, particularly those staffed with part-time personnel, are unable to render services in the less-congested areas which need public health programs. Public health workers are reluctant to extend services and programs into company-owned communities. Coal miners have not demanded programs in public health and sanitation. Coal-mine operators have not encouraged and arranged for the establishment and maintenance of public health programs. Physicians associated with coal mines have not promoted public health programs, and they have been indifferent toward utilizing public health facilities and personnel.

## Industrial Medicine



Developments in the science of industrial medicine and hygiene have been applied successfully in many United States industries, with remarkable benefits to the health and welfare of the workers. Improvements in labor relations leading to increased productivity and reductions in absenteeism resulting from industrial accidents or disease have resulted. Numerous industries have been able to show decreased expenses for medical care, including compensation costs and insurance premiums, when the principles for preventing occupational disease and industrial accidents have been applied intelligently.

The bituminous-coal-mining industry, upon which many other industries depend, has lagged in its appreciation and utilization of preventive medicine programs for its workers. The few exceptions to this general rule stand out prominently among the mines observed during this Survey. Occasionally well-developed programs of industrial medicine and hygiene are found at coal mines operated by the larger companies—and most of these companies have major industrial interests besides coal mining.

The health hazards in the coal miner's working environment merge with and, in some respects, are

inseparable from sanitation of his living environment. Serious deficiencies in sanitation observed at company-owned mining communities and others where the miner practically lives on the job and where his home is close to the mine emphasize this important relationship.

The great majority of physicians serving the coal-mining industry are engaged primarily in the general practice of medicine. By tradition and by the nature of the conditions under which they are employed, they have not been made responsible for adequate programs of industrial hygiene and preventive medicine.

Briefly stated, a comprehensive program of industrial medicine and hygiene, which is adaptable to many modern industries, comprises the following activities:

1. Medical care of industrial injuries and occupational diseases, including
  - (a) Utilization of registered nurses at dispensaries and first-aid stations.
  - (b) First-aid treatment.
2. Initial surveys or studies and periodic inspections of working environments to discover and control health hazards, supplemented by laboratory analyses of gases, dusts, water, etc.
3. Application of measures for controlling health hazards by adopting the techniques of industrial hygiene engineering, safety engineering, and sanitary engineering.
4. Effective programs of first-aid instruction and of health and safety education for employees.
5. Routine and thorough physical examinations (preemployment or preplacement, periodic, and terminal) of all employees.
6. Job analyses by medical personnel to classify jobs in terms of physical requirements.
7. Compilation and analyses by medical departments of medical records, including accident, illness, and absenteeism reports, to evaluate the program and direct its application.

These activities are recognized as highly specialized endeavors requiring trained and experienced professional personnel. However, it should be remembered that private consultant services are available and that most State health departments and the Federal Government have specialists who are available to advise in the establishment and conduct of such programs.

Among the 260 mines studied, it was found that only 14, or about 5 percent, employ physicians on a salary basis for treatment of industrial injuries. Observations indicate that most of those mines where

attention is directed to industrial medicine and hygiene are included in this group. The program of the medical departments at a few of the larger mines includes routine physical examinations (pre-employment, periodic, and terminal), industrial sanitation, and accident prevention. The responsibilities of physicians at these mines usually embrace general medical care for the miners and their dependents, in addition to treatment of industrial accidents.

With very few exceptions, coal-mine physicians are not familiar with the miner's working environment, the physical capacities required to do several types of mining work, and the industrial-accident and occupational-disease hazards of the particular mines they serve.

A parallel may be drawn between the mine physician and the medical officer of a naval vessel. Knowledge of a ship's compartments and working spaces, including its turrets, magazines, engine rooms, double bottoms, passageways, and means of exit, is essential to the ship's doctor so that he may understand the crew's working conditions and actual or potential dangers involved. He must be able to evaluate the mental hazards and psychological reactions that affect the sailor in any given situation. He must be intimately familiar with the safest means and most direct routes for evacuating casualties, ways for escape, and the adequacy and disposition of first-aid and dressing stations. He must understand the duty assignments, in terms of physical demands, special skills, and abilities. He must select personnel for assignment carefully, in accordance with known physical capacities and capabilities. A negligible number of coal-mine physicians at the mines surveyed were found to have comparable knowledge of conditions within mines, of the various demands of types of occupation, and of the physical capacity and aptitude of the miners. This observation indicates the general disinterest of Management and physicians in the modern concept of industrial medical care.

### *Working Environment of the Coal Miner*

Industrial medicine is concerned with the worker's health hazards and resultant diseases or disabilities that are peculiar to his occupation and to the indus-



try in which he is employed. The hazards may be many and varied and may involve not only physical but psychological stress. The environment of coal-mine employees constitutes a fertile field of study from the standpoint of industrial medicine and hygiene. Through such study, invaluable contributions can be made to improvement of working conditions and reduction of disease and accident frequencies.

The type and characteristics of coal mines depend in part upon the extent, depth, slope, and thickness of the coal beds.

Over extensive areas, workable beds of coal can be reached easily by entering hillsides along a valley bottom through horizontal tunnels, called *drifts*, or by gradually sloping tunnels, called *slopes*. In other places, deposits can be reached easily by sinking vertical openings, known as *shafts*, downward into the ground. In still other places, however, the coal lies so close to the surface that it can be mined after the relatively thin cover of earth and rock has been stripped off with excavating machinery. Thus, by underground mining through shafts, slopes, and drifts, by surface or strip mining, or by a combination of methods, coal is extracted from the ground.

Underground shaft mines generally range from about 150 feet to 700 feet in depth; however, the average underground bituminous-coal mine is about 300 to 350 feet deep. In contrast to shaft mines there are drift or slope mines which have 2,000 to 3,000 feet of earth coverage.

Strip-coal mining has made remarkable progress in the last 30 years. Whereas, before 1917, less than 1 percent of United States soft-coal output was strip-mined, by the end of 1946 approximately 20 percent was from surface mines.

The thickness of the coal beds varies considerably in different parts of the country, reaching extremes within States as well as among States. Along the Appalachian Range in Pennsylvania, Maryland, West Virginia, and Virginia, the coal beds average about 5 feet in thickness. In these States, 15 to 35 percent of the coal is mined from seams less than 4 feet thick by various methods. In eastern Kentucky the average thickness is less than  $4\frac{1}{2}$  feet, and about 45 percent of the coal is mined from seams less than

4 feet thick. In Ohio, more than 70 percent is mined from seams 4 to 6 feet thick. In Illinois, the commercial beds average more than 6 feet in thickness, and the majority of the coal is produced from 5- to 7-foot seams. In Arkansas, the commercial coal beds average 3 feet in thickness, and almost three-fourths of the coal produced comes from seams less than 4 feet thick. In the Rocky Mountain States, the beds are the thickest (especially in Utah, where the average is about 11 feet); almost two-thirds of the coal comes from mines having seams more than 8 feet thick, some as thick as 25 feet or more.

The removal of coal by deep-mining methods develops underground spaces with roofs of varying capacity to withstand stress, depending upon the nature and structure of the overlying strata. The structures may be so uniform that they will remain in position without support. On the other hand, they may be so faulty, with fractures, fissures, and other defects, that removal of the coal results in the fall of rock, unless some type of artificial prop is placed beneath the roof. Moisture and air, which are present in all open spaces within the mine, may penetrate the interstices of the roof and act upon the roof structures, extending the fissures and cracks to a point at which large sections of the roof may split apart from the overlying structure. Although a prop may be placed beneath the roof, nevertheless roof support may not be adequate owing to decay of props, errors of judgment in their placement, inadvertent displacement, and insufficiency. Mine-safety training stresses attention to roof conditions; moreover, the experience of the miners should dictate caution, yet falls of roof cause the largest number of injuries and fatalities underground.

To remove coal from a mine, a complex haulage system has been developed. Except in the very largest mines, this complex system is usually a single-track railroad. Transportation equipment consists of electrically driven locomotives and coal cars adapted to the thickness of the seam. The capacity of the coal cars ranges from 1 to 10 or more tons. The size of the locomotives depends upon the amount of load to be hauled, grades, and other conditions. The transportation system involves the usual hazards associated with electrical and automotive conveyances, which cause a multiplicity of



*Because falls of roof are the most frequent cause of mine injuries and fatalities, the placing of props (timber posts) is an important feature of underground operations.*

accidents. Men are struck by locomotives or cars, run over, squeezed between cars and locomotives, or crushed between cars and the rib or roof of the mine.

Some coal beds are level; and, except where grades change slightly, locomotive haulage equipment is ordinarily required. In such mines run-away cars do not constitute a severe hazard. Other mines are developed in coal seams that have a definite grade. At any point, mobile equipment may run down grade under its own weight. Personnel, mechanical, and matériel failures may cause equipment to run away on the slopes and endanger the men below.

Electrical power is employed within mines. Trolley wires, carrying electrical current (usually 500

or 250 volts), are present in haulageways except where storage-battery locomotives or belts are used. Heavy machinery is powered by high-voltage current. Overhead wiring is carried throughout the main haulageways. Thus, the hazards of high-voltage electrical current constantly surround the miner.

Machinery to increase production has been adapted in size and characteristics to the thickness of the coal seams mined. Production machinery is designed for cutting, drilling, and loading coal. In some mines recently developed, large conveyor belts have been substituted for rail-transportation systems. These various types of machines have numerous moving parts, therefore the hazards of moving parts are always present unless safety and protection are built into the machine.

In thick coal beds, the miner can work erect; and, as these seams lend themselves to mechanical equipment, much of the laborious work is accomplished by machinery. In low coal seams the arduous work of loading coal is done largely by hand labor. In such beds, the miner is obliged to squat, kneel, lie on his side, stoop, or crawl. The human body is not constructed to do heavy, laborious work efficiently in such positions. Although the miner adapts himself to the most tolerable position within the limits of the space within which he works, his body is strenuously taxed in performing his task.

Ventilation is most important. It dilutes and removes explosive or toxic gases from the mine and furnishes an adequate supply of oxygen to the men.

Methane occurs in many mines within the interstices of the coal seam or the strata above or below it. As the bed is opened and mining progresses, methane gas usually is liberated into the mine atmosphere. When mixed with appropriate amounts of air, it is explosive and can be readily ignited by a spark or flame, resulting in a serious explosion. Concentrations of methane gas high enough to

reduce the oxygen concentration of the atmosphere to a level that will not support life have been present in some coal mines; and, under certain conditions, dangerous volumes of carbon monoxide gas are encountered.

Other gases present in coal mines are oxides of sulfur and hydrogen sulfide. The presence of these gases is related to the sulfur content of the coal and to blasting. Poisonous oxides of nitrogen resulting from detonation of explosives may be found in the atmosphere at working faces immediately after blasting.

Continued passage of air throughout the mine dilutes and removes these various gases and minimizes the toxic effects. Circulating air currents also dilute and remove from the working environment excessive concentrations of dust thrown into the air by various mining operations.

There are two main methods of providing mechanically controlled ventilation in mines. First, by means of large fans, fresh air is forced into the mine. Second, by means of large exhaust fans, the air within the mine is sucked out along the return-air passages, and fresh air flows into the mine through



*Large fans installed on the surface of an underground mine, a facility essential to safety, since proper ventilation removes explosive and toxic gases and furnishes an adequate supply of oxygen to the miners.*

other openings from the surface. Of these two methods, exhaust-type ventilation is preferred by the Federal Bureau of Mines. The exhaust system, which is placed upon the return aircourse, produces a negative pressure within the mine. The gases within the strata of coal when released may be impounded or may develop in abandoned workings; they are under a suction and, in the presence of a negative pressure established by exhaust fans, flow out of the mine in the direction of the negative pressure. With forced ventilation, there may be a tendency for gases to be impounded, and upon release of the pressure these gases may flow into the mine passageways.

The pathway along which air enters or leaves a mine is called an aircourse. The location of the intake and return aircourses may vary. For example, in some mines the intake aircourse is coincident with the mine haulageway, whereas in others the intake aircourse is along nonhaulage entries. There are valid reasons for establishing the intake aircourse in either location.

Maintaining the principal haulageway as the intake aircourse is advantageous in case of a fire or explosion in the mine, because in such an event the ensuing smoke or gases will not be expelled along the main route of entrance to the mine. Thus, any men attempting to enter the mine workings which are affected by fire or explosion can advance along with fresh air. Another advantage resulting from having the main haulageway on the intake is that methane and other explosive gases generated or released in the mine are removed along nonhaulage aircourses that are generally free of electrical equipment. On the other hand, if the main haulageway is a return aircourse, the explosive mixtures of gases may be carried along and ignited by the sparking of locomotive trolleys or by sparks and arcs from other electrical equipment along the haulageway.

An objection to using the main haulageway to conduct intake air into the mine is that roof deterioration and roof falls in the haulageway may result by reason of this practice. This occurs in some regions of the United States during the summer months when the incoming warm, humid air strikes the cool mine strata and condenses, depositing moisture on the roof and walls of the mine. Under

these circumstances, men passing to and fro in the main haulageway are constantly endangered by roof falls. When the nonhaulage entry is chosen to conduct air into the mine and the main haulageway is used for the return aircourse, the air has been cooled and relieved of its moisture in its circulation through the mine workings. Under these circumstances, roof deterioration is less apt to occur in the main haulageway. Moisture and changes of temperature ordinarily cause much less damage when the main haulageway is the return aircourse.

To assure adequate ventilation in mines, the various coal-mining States have adopted laws and regulations with intent to control air flow in the mines. Nine States stipulate that a maximum of 100 cubic feet of air per minute per person must pass the working faces of the mine. Six States require 150 cubic feet of air per minute per person. The volume of air that must pass the working face of the mine for safe operation depends upon the volume of explosive gas liberated; hence, some mining places require far more than 150 or even 200 cubic feet per man per minute.<sup>1</sup>

Drilling, cutting, loading, and other operations create considerable quantities of finely divided coal dust and throw it into the surrounding air. Ventilation can be made to dilute the concentration of dust at the working face. The dust is carried briefly by air currents and deposited along the return aircourses, the heavier particles settling first and most of the lighter particles settling later, although some of the very fine dust is taken out of the mine by the ventilating currents. The exhaust air contains a minimum concentration of large sizes of dust.

Finely divided coal dust is highly explosive, even in the absence of gas. In heavy clouds, it can be ignited by an open flame such as a match (or by a carbide lamp) or by an electric arc. In case of gas explosions, the finely divided dust, stirred into a cloud by concussion, ignites and propagates or extends the explosion. Although ventilation dilutes dust, nevertheless the use of water in drilling, cutting, and loading reduces dust at the working face more efficiently, and prevents its spread through the mine.

<sup>1</sup> Federal Mine Safety Code for Bituminous and Lignite Mines of the United States, 1946. See art. V, pp. 21-25, on ventilation.



*Rock-dusting an entry in a coal mine to minimize the hazards of coal-dust ignition and the propagation of explosions.*

The prevention of open flames and the application of incombustible dust (rock dust of negligible silica content) on the exposed surface of the mine minimize the hazards of coal-dust ignition and the propagation or extension of explosions.

In some coal mines where rock roof or floor has to be removed for height or other reason, there may be exposure to silica dust by the workmen employed in removing the rock. Breathing such dust over a period of years may cause a lung disease known as silicosis; inhaling a combination of rock dust containing silica and coal dust may cause a condition termed "anthracosilicosis." Occasionally silicosis is contracted in the coal-mining industry because sand of high silica content frequently is used to provide traction for locomotives. The finely divided sand is deposited along the railroad tracks of the haulageways. The passage of mobile equipment through the haulageways

crushes the sand and stirs the fine dust into the air.

The range of temperature in most coal mines of the United States is 50° to 70°, with an approximate average of 60° and a relative humidity of 80 to 90 percent. About half of the mines in the United States have almost 100 percent humidity at or near the working faces. In the central and eastern United States, the outside temperature ranges between 80° to 90°, with high relative humidity in the spring and summer; but the temperature of underground strata in coal mines remains uniform at 70° or less throughout the year. The lower temperature of the strata in the mine workings causes the incoming hot, humid air to condense and form moisture, or sweat, on the surfaces of the mine workings. The humidity at the working faces and in the return aircourses of some mines, however, is very high where large quantities of water are used underground for dust control.



*The hazards of strip mining are those attendant upon working with heavy machinery, trucking, and excavation. The hazards are few in comparison with underground mining.*

Exposed to potential hazards of gas, dust, explosives, electricity, heavy machinery, and transportation, the miner works in a poorly lighted, enclosed environment beneath a roof always subject to falling.

Hazards of exposure to disease are present in underground mines because of the general absence of sanitary facilities. Toilet facilities are seldom provided, and miners customarily use abandoned underground workings without regard for sanitary disposal of human excreta.

In strip mining, large mechanical shovels may excavate as much as 100 feet of overlying earth to

expose the coal seam. In the depths of the excavation, smaller shovels cut into the coal seam and load the coal into trucks. The hazards of strip mining are those attendant upon working with heavy machinery, trucking, and excavation. Much of the heavy machinery is powered by the electric current of Diesel electric generators, with the result that danger of electrical accidents is present and obvious. Injuries due to tripping and falling of workers are not uncommon. Earth slides and falling rock are other hazards. Trucking accidents are relatively infrequent. The hazards of strip mining are few in comparison to those underground.

## *Surveys and Inspections of Environment*

State agencies, including State departments of mines, of health, and of labor, in addition to the Federal Government agencies, are interested in health and safety in the mining industry. The Federal Bureau of Mines, since its inception in 1910, has devoted considerable effort to studying the working environment of the coal miner in order to develop safety practices. This Bureau for a number of years has desired to expand its activities beyond the field of safety to include study of all factors related to industrial health; but such expansion has not been possible due to inability to obtain adequate funds with which to correlate its safety activities with the important health phases of the problem and to conduct a coordinated comprehensive program.

State departments of mines are concerned primarily with the working environment to determine safety hazards and to establish and enforce safety measures. State departments of health are established to control and supervise the general health of the people. They deal specifically with those utilities that serve the general public—for example, water supply. The State departments of health seldom investigate conditions on private property, except upon request of the property owner. Industrial hygiene divisions of State health departments cooperate, upon request, with Labor and Management in the study of working environments and hazards affecting health.

Very few mining companies were observed that support industrial hygiene departments. As a result, most mining companies have not studied industrial hygiene conditions. The investigations within the mining industry have been conducted by agencies other than the industry itself. The hazard of silicosis has prompted study of occupational diseases by the Federal Bureau of Mines, the United States Public Health Service, and a few State agencies. Ventilation studies concerned with safety, which have been conducted by the Federal and State bureaus of mines, have contributed to the abatement of health hazards in the mining industry.

Proposed surveys to determine the prevalence of tuberculosis, silicosis, and other occupational

diseases on occasion have been opposed by either Labor or Management. To illustrate, a few years ago the Arkansas State Department of Health attempted to make a mass survey of the prevalence of tuberculosis and silicosis. Union groups objected very strenuously on the basis that, if pulmonary diseases were found in miners, they would be unemployable and discharged. A coal operator opposed a mass tuberculosis survey because he feared that the survey would uncover pulmonary disease among miners that might be compensable under the State workmen's compensation law. In contrast, the United States Public Health Service recently conducted a successful study of the working environment of Utah miners.<sup>2</sup> If Labor and Management put aside their traditional discord and cooperate in developing industrial health and preventive medicine, they will contribute materially to solving industrial health problems.

Periodic inspections of the working environment are conducted by the Federal Bureau of Mines and State bureaus of mines, primarily to determine the safety of mine working conditions. A few mining companies employ safety engineers who seek ways and means to improve the safety of the working environment in the mine. The Federal and State agencies and, in some instances, the safety engineer of the company analyze gases and dusts, primarily for prevention of explosions rather than safeguarding the miners from hazards of disease.

In company-owned communities, the working and living environments are intimately associated. Although the communities may be large, they are, nevertheless, not public. Studies of environmental sanitation that would be performed by the State or county health departments, were the communities public, are not conducted as a matter of routine. Such studies will be undertaken by public agencies upon request of a mining company. Most mining companies have made no provision, within their own organizations, for studying the factors involved in environmental sanitation. This function has been assumed by the industrial hygiene departments in many industries but has been neglected by the bituminous-coal-mining industry.

<sup>2</sup> U. S. Public Health Service, *Salt-Coal Mines, Health and Working Environments* (Public Health Bull. 276, 1941).

## *Medical Records and Job Analysis*

The maintenance and statistical analysis of health and accident records are fundamental parts of any well-organized program of industrial hygiene but are not common in the coal-mining industry. Records of this character reveal unusual frequencies and contributing factors to the cause of industrial accidents and frequencies, causes, and nature of industrial and nonindustrial illness and absenteeism.

The majority of mines surveyed do not keep records of absenteeism other than those essential for the payroll clerk. Little attempt is made to evaluate the frequency, the cause, or the severity of nonindustrial illness that contributes to absenteeism.

The Federal Bureau of Mines has developed an accident-recording system which enables it to obtain satisfactory information on the frequency and severity of accidents in the coal-mining industry as a whole. Mining companies are now required by State law to report all accidents occurring upon their premises. Many States employ the accident-recording system of the Federal Bureau of Mines and use its forms, thus eliminating duplication. Records of the accidents reported to the various State departments of mines and to the Federal Bureau of Mines are available at many coal mines surveyed.

The information obtainable from national and State records of injuries, however, needs to be supplemented by valuable information available by analyzing the records of individual mines. The industry knows that conditions in any two mines differ, and records must be analyzed and interpreted in terms of the circumstances peculiar to a given mine. By such means, not only the relative degrees of hazard involved in each type of job but also the physical and mental requirements of different jobs, and the experience and skill necessary to accomplish specific tasks, may be evaluated. Coordination between the medical and personnel departments of each mine, as well as the local union, can result in the establishment of standards and criteria for each position, which can be utilized in preplacement, replacement, rehabilitation, and temporary changes in positions for employees. The application of sound principles of job analysis benefits employers and employees alike.

## *Physical Examinations*

Physical examinations, including the medical histories of employees, have a firmly established place in an industrial medical-care program for several important reasons. Their purpose and periodicity are indicated by the names given to them, that is, preplacement or preemployment, periodic, and terminal. When competently conducted and appropriately utilized, they have proved to benefit Management, Labor, the individual miner, and the medical profession. They provide necessary information for matching the physical capacities of employees to the specific requirements of a variety of jobs within an industry, such as coal mining.

Only by thorough physical examinations can the early signs of disease or disability be detected. In industry, physical examinations are indispensable to keep the physically unfit individual from doing work hazardous to himself or from situations that may be beyond his physical limitations or that overtax his physical reserve. Perhaps of greatest importance to the individual is the information that the examination provides for protection of his own health. The periodic examination may supply the clue to detecting important occupational hazards, as manifested by early symptoms of exposed employees. Obviously, such an examination is advantageous to Management for minimizing compensation costs by permitting early diagnosis of occupational disease. In the mining industry, one who is not physically fit to accept the hazards of the occupation is a liability to the employer and conceivably a hazard to the men with whom he works. For example, defective vision may lead to a serious accident in the dimly lighted interior of the mine. Further, defective hearing may interfere with the miner's discovery of a dangerous roof condition. The more mechanized the mine, the more necessary it is that employees be carefully selected, trained, and adjusted for the various duties to be performed. With increased mechanization there should be added opportunities for employing those physically handicapped, provided they are appropriately selected and placed in accordance with the principles of job analysis.

The onset of degenerative disease with advancing age has stressed the importance of the physical check-





*Company doctor examining applicants for jobs as miners. Preemployment physical examinations are conducted at two-thirds of the mines surveyed, but their sole purpose is to determine the applicants' physical fitness for employment.*

up in the older age groups. Analysis of the 1940 age distribution of workers in the United States coal industry (table 5) shows that about 12 percent of all miners are 55 or more years of age. Twenty percent are 45 to 54 years old.

The terminal examination at the conclusion of employment provides the employer with valuable information if former employees make claims for slowly progressive occupational diseases or physical

disabilities; such an examination, moreover, can be of invaluable service to the miner himself when he is informed of such illness and given proper advice.

Among the sampled mines it was found that preemployment physical examinations were conducted at 172, or 66 percent. This high percentage of mines at which such an industrial medical function is performed demonstrates a rudimentary interest, at least, in one practical phase of industrial medicine.

At only a few of these mines, however, is Management obtaining the full benefits to be derived from this procedure, because well-rounded industrial medical programs have not been developed. A few of the more progressive and enlightened coal operators have fully recognized the importance of the physical examination. They have caused it to be made a part of the industrial medical routine and have put it to profitable use. This holds especially at several of the larger mines and at certain captive mine operations, where the medical director is interested in industrial medicine. Because the majority of mine physicians generally are unfamiliar with the working environment of the miner in terms of job analysis and apparently are not interested in industrial medicine as a specialty, the preemployment examinations they conduct have little value, in many instances, other than for purposes of exclusion from employment.

Throughout the Survey an opportunity was pre-

sented to inspect, at random, the physical-examination record cards of employees. These observations indicated that, in the smaller mines, the routine industrial physical examinations were usually haphazard; and examination findings, such as visual and auditory acuity, blood pressure, and urinalysis, often were not recorded. Such perfunctory examinations benefit neither the job seeker nor the employer who is concerned with proper placement of individuals. As applied by most of the mine physicians, they contribute very little to preventive medicine, despite the fact that they could be potent and constructive factors.

The physician conducting the preplacement physical examination has a dual responsibility. He should report faithfully to the employer whether or not the applicant is physically qualified for any work or whether his physical limitations restrict his employment to specific types of work. The other element of the physician's responsibility is to the

*Company physician studying X-ray photographs taken during pre-employment examinations of miners. Chest X-ray examinations are performed as a regular routine at less than 5 percent of the mines surveyed.*



individual examined, who, presenting himself for employment, should be given the benefit of a factual examination and an impartial decision in the physician's recommendation for employment. Labor's viewpoint has been that physical examinations shall be used for such a purpose only. Several wage agreements between various district unions and the several coal operators' organizations read as follows:

Physical examinations, required as a condition of or in employment, shall not be used other than to determine the physical condition or to contribute to the health and well-being of the employee or employees. The retention or displacement of employees because of physical conditions shall not be used for the purpose of effecting discrimination.

On the other hand, many coal-mine operators have not been convinced of the value of industrial medical programs, including physical examinations. In a very few coal-mining States, notably Utah and New Mexico, laws have been enacted that require pre-employment and periodic physical examinations.

The physical examination in industry differs from that used by the physician in general practice to ascertain the physical condition of an individual patient. It includes an evaluation of the subject's physical capacities to perform specific jobs. Obviously, the more complete the examination, the greater will be its usefulness to the medical department, the employee, and the employer.

The ideal industrial physical examination record is quite comprehensive and includes at least the following:

1. Detailed personal medical history.
2. Brief family history.
3. Physical findings by anatomical systems, including respiratory, cardio-vascular, gastro-intestinal, genito-urinary, skeletal, muscular, nervous and special senses.
4. Laboratory studies, including urinalysis (microscopic examination included), blood serology, X-ray examination of chest, and other procedures as suggested by medical history, family history, or physical findings.
5. Summary of findings.
6. Appraisal with reference to job placement.

Such comprehensive examinations are made by a few of the larger coal-mining companies. However, chest X-ray examinations, for instance, are performed routinely at only 12, or 4.6 percent, of the sampled mines, which discloses too infrequent use of invaluable X-ray findings. Chest X-ray examinations are

of special importance in industry because of the several known occupational diseases of the respiratory tract which, in their early stages, are discoverable chiefly—and in the majority of cases only—by this means. Of particular significance to the coal-mining industry are silicosis, anthracosis, and tuberculosis, or various combinations of these diseases. Chest X-ray examinations and simple routine laboratory procedures cannot be readily performed at most of the surveyed mines because the necessary facilities and technicians are not available. There are known instances of Labor's opposition to routine chest X-rays. Such opposition is scientifically untenable and harmful to the industry, the individual, and the community.

At those mines where health records, including physical examination reports of employees, are on file, they are usually in the personnel department. This practice of making confidential medical information readily available to nonmedical personnel is contrary to medical ethics. Such records should be kept only in the custody of the medical department to protect the confidential data contained therein. Information obtained in the course of making pre-employment examinations and recording applicants' medical histories is known to have been used for purposes far different than evaluating physical qualifications. For example, at one mine the physician reported that an applicant who is personally qualified for a job might not be hired if there was a history of chronic illness, physical disability, or even "nervousness" among members of his immediate family.

At 81 of the 172 mines in the Survey where pre-employment examinations are conducted, the physicians are not paid by Management to make such examinations. At these same mines, a system of wage deduction providing for prepaid general medical care exists. Thus, it is reasonable to assume that miners' contributions for general medical care (and, in some instances, the fees for care of compensation cases) are being used to defray the expense of physical examinations—an expense that is generally regarded as the exclusive and specific responsibility of Management. It is entirely probable that more mine physicians would assume an active interest in industrial medicine if they were to be paid adequately and specifically for practicing it.



*Miners' first-aid team practicing during instruction course. The extent of first-aid training at mines has had a serious decline in recent years.*

### *First-Aid Training*

During the 5-year period 1906-10, 10,177 coal miners were killed in 84 major coal-mine disasters and other accidents. A dramatic series of 5 major coal-mine disasters, killing 701 men in "Black December," 1907, called public attention to the dangerous working conditions of miners. These continuing catastrophes, involving the loss of so many lives, focused the attention of Congress upon mine disasters. As a result, the establishment of the Federal Bureau of Mines was authorized on May 10, 1910.

Health and safety investigations were immediately instituted. First-aid and mine rescue training was begun in the fall of 1910. A number of mine-safety

stations were established in the mining regions of the United States. Six mine-safety railroad cars were commissioned and strategically placed in the mining areas. These cars were manned by instructors who taught first aid and mine rescue at mining camps. A First-Aid Manual was formulated to standardize first-aid training. This manual was published in English, Polish, Italian, and Slovak and distributed to the miners as a text of first-aid procedures. The vast experience obtained in training approximately 1,000,000 coal miners since the establishment of the Bureau of Mines has revealed imperfections in first-aid training and necessitated repeated revisions of the manual to include the most up-to-date knowledge.

Before 1925, small teams of miners were trained in first-aid procedure at the several mines under the

assumption that the first-aid team would immediately proceed to the scene of an accident in a mine or at a mining plant. This proved impractical because the team members were working in various parts of the mine, some on the surface, others underground, and yet others on various shifts. Therefore, they could be assembled only with a loss of time that nullified the effectiveness of a first-aid team.

For a period subsequent to 1925, progressive coal-mining companies assisted in establishing a 100-percent first-aid training program. These companies required first-aid training as a requisite to employment or to continued employment, because any man working in or about a mine is subject to injury and may need prompt assistance from a co-worker trained in first aid. Thus, in order to have a miner trained in first aid always available at once when an accident occurs, everyone in and around a mine must have had first-aid training. The principle of 100-percent first-aid training became accepted widely.

Experience in handling a large volume of training indicated that, to provide individual attention and efficiency of instruction, first-aid classes should be restricted to a maximum of 25 to 30 persons. As

the training program gained impetus, a system of training company instructors was evolved. Ten to 20 competent, intelligent employees were selected by the company to take an instructor's course of 20 hours of first-aid training. These men then divided the mine or company personnel into groups of approximately 25 men each and taught first aid to their fellow employees.

The first-aid training program was supervised by Bureau of Mines instructors, who traveled from mine to mine, to maintain contact with the various classes. If the miners were found to have reasonable knowledge of the fundamentals of first aid upon completion of the training course and an examination, each was issued a Bureau of Mines certificate. This program did not produce 100 percent of well-trained first-aid men, but it contributed to making many men more accident-conscious. In addition to the rudiments of first-aid procedures, they were informed as to the causes of accidents and were taught simple methods of accident prevention. Many of the men who were given first-aid training became safety-conscious. The first-aid program expanded greatly. In 1 year (1938) slightly over 80,000 coal miners were given first-aid training. After several years, 100-percent

*Competitive first-aid meet in West Virginia, September 28, 1946. Such competitions between first-aid teams of various mines were common in the coal fields prior to the war.*



first-aid training was recognized as a most successful accident-prevention program.

The advent of the Fair Labor Standards Act of 1938 was a deterrent to first-aid training, however. First-aid training had been done after working hours on the time of the employee. The employer provided materials and the meeting place. Under the Wages and Hours Law, first-aid training was interpreted to constitute "work". Since the course was taken after hours, it was generally believed that the men participating had to be paid at a time-and-a-half rate. Although there was no official ruling on this specific point, the common interpretation resulted in a gradual retardation of the first-aid training program.

During the war emergency, other contributing factors developed, such as greater production demands, transportation difficulties, and longer working hours. Under these conditions it became difficult to assemble classes for training.

Table 29 indicates gradual decline of the first-aid training program between 1934 and 1946. In effect, the training program practically ceased by the end of the war. The evidence indicates that the interpretation of the Wages and Hours Law and war emergency conditions disrupted first-aid training.

TABLE 29.—Coal miners trained by Federal Bureau of Mines in first-aid and mine rescue procedures, 1934-46

Fiscal year	First aid	Mine rescue	Total
1934-35	51,719	757	52,476
1935-36	54,840	646	55,486
1936-37	36,487	1,256	37,743
1937-38	70,593	1,072	71,665
1938-39	83,584	1,144	84,728
1939-40	64,944	1,214	66,158
1940-41	54,163	2,004	56,167
1941-42	52,100	829	52,929
1942-43	21,689	1,246	22,935
1943-44	9,683	1,106	11,289
1944-45	4,991	1,455	6,446
1945-46	7,411	1,272	8,683
July 1 to Dec. 31, 1946	5,669	719	6,388
Total	497,793	15,200	512,993

First-aid training programs have not been conducted at many of the mines for the past 5 years. Miners certified in first aid, who should be repeatedly

retrained, have had little or no training in this 5-year period. Many newly employed miners have not been trained at all. As a result, the effectiveness of applied first aid within the mine has declined. The associated value of safety lessons integrated with first-aid training has been lost. Should the present failure to train miners in first-aid procedures continue, the serious injuries received by miners will be aggravated because first-aid measures have not been properly applied. Fractures may be improperly splinted or not splinted at all, bleeding may not be controlled, back injuries may be mishandled, proper attention will not be paid to transporting the injured, and other elements of first aid will be neglected, resulting in avoidable fatalities and disabilities.

The necessity for first-aid training and accident prevention in the mining industry remains. Combined responsibility for first-aid training of miners rests upon Labor and Management. Rather than using compensation for first-aid training as an element of discord, Management and Labor officials have a mutual obligation to solve the problem. Because of the break-down of the first-aid training program the lives of the miners are being jeopardized.

### First-Aid Practices

Judged on the basis of the National Safety Council's latest report, the mining industry is the most hazardous from the standpoint of severity and the second most hazardous from the standpoint of frequency of injuries.<sup>3</sup>

It is therefore of primary importance that consideration be given to the way industrial injuries are handled in coal mines. As 89 percent of mines surveyed were underground, emphasis will be placed on activities observed in mines of this type.

If an accident occurs within a mine, care of the injured follows a standard pattern. First, the injured man is extricated if he is pinned under a fall of rock or heavy equipment. First aid material is brought to the scene of the accident and first aid rendered by fellow workers to the best of their ability. If they possess the knowledge, these individuals control

<sup>3</sup> National Safety Council, Three-Year Frequency and Severity Rates in Certain Industries: Accident Facts: Chicago, 1945.

bleeding, apply dressings, and splint fractures. The injured man is prepared for transportation by wrapping him securely in woolen blankets and placing him upon a stretcher. Simultaneously, the dispatcher and the mine office are notified that an accident has occurred. The dispatcher is notified in order that the transportation system of the mine may be cleared for rapid evacuation of the injured person. The mine office is notified so that the surface personnel may summon a physician and ambulance.

Following administration of first aid, the individual is taken to a coal car on a stretcher and removed to the surface, accompanied by one or more miners. If the man delivered to the surface has been seriously injured, he is attended by a physician (if one has been located) and transported to a hospital.

The usual procedures followed in caring for an injured miner serve as a general outline for discussing the first-aid facilities and practices.

First-aid material is not stored at the working face of the mine because it is likely to be damaged in this location. It is stored underground, however, in a station at a strategic and convenient place within 300 to 3,000 feet of the working face. The maximum distance is usually fixed by State regulation. The location of the first-aid station is important, in terms of time and distance, because it determines the rapidity with which first-aid materials can be made available. Table 30 indicates that some type of first-aid equipment is provided underground at 87 percent of the deep mines studied; 185 mines, (80 percent) are fully provided with stretchers, blankets, dressings, and splints.

TABLE 30.—Surface and underground first-aid facilities at 231 deep mines

	Underground		Surface	
	Number of mines	Percent	Number of mines	Percent
No first-aid facilities	31	13	127	55
First-aid facilities not conforming to standard	15	7	25	11
First-aid facilities conforming to standard	185	80	79	34
Total....	231	100	231	100

The maintenance of first-aid facilities underground in good condition poses a difficult problem. First-aid equipment stored underground was spot-checked at a number of mines; in some instances, it was found that the fabric of the stretcher was deteriorated, blankets were unprotected, and dressings were improperly wrapped and contaminated. Moisture contributes to the deterioration of first-aid material.

In other instances, first-aid equipment was insufficient in amount, due to usage, alleged pilferage, and failure of replacement. According to Management, inspection is a routine activity. However, Survey observations indicate that the inspection procedures are not frequent or thorough enough to maintain the first-aid equipment in proper condition.

### *Transportation of Injured Within Mine*

As stated in the preceding section, following first aid an injured miner is transported to the surface by mine car—sometimes with considerable difficulty, depending on the type of mining operation. In low-seam workings, for example, fellow miners, progressing slowly and laboriously on hands and knees, carry an injured miner to a mine car in the haulageway. In high-seam coal, the stretcher can often be carried by men walking erect. In mechanized mines, where haulage equipment is near the working face, the stretcher can be placed immediately in the mine car to be taken to the cage or directly to the surface.

Inquiries at 68 percent of the underground mines reveal that an injured man can be transported to the portal in 30 minutes or less, excluding the time required for first-aid preparation, in 3 percent of the mines surveyed, it required 60 to 90 minutes. Management is obligated to direct the transportation system of a mine so that a minimum of time is required when an injured man is ready to be moved to the portal.

With few exceptions, when an injured man is delivered to the surface, he receives his first professional medical attention. Local physicians are designated to render emergency medical treatment to injured miners. In some instances, these physicians



*First-aid station located near mine portal for treatment of emergencies and preparation of injured persons before transfer to hospitals. Surface first-aid stations were observed at 104 of 231 underground mines.*

live on the premises of the mines; in others they may reside in a nearby community. Summoning a physician to attend the injured is occasionally beset with difficulty, because in rural areas where telephonic communications do not exist, or are not widespread, the "on-call" physician may be attending a patient in an isolated home and cannot be reached immediately. Under such circumstances, an injured man may be delivered to the surface, and medical attention not always be immediately available. Under these circumstances, as a matter of expediency, the injured man may be transported directly to the hospital without medical observation.

The facilities available to physicians for the treatment of accident cases are not always maintained within first-aid stations in the vicinity of the mine portal. According to table 30, surface first-aid stations were observed at 104 underground mines, but only 34 percent maintained adequate surface first-aid facilities.

There were no first-aid facilities on the surface at 127 underground mines; moreover, 22 of these mines had no first-aid equipment whatsoever. In other

words, at 22 mines no apparent effort had been made to provide for emergency care of the injured.

A mine was judged to be adequately equipped to handle injuries if first-aid facilities are maintained underground and on the surface. It was found that approximately 28 percent of the mines met this standard. These mines provided certain indispensable items, such as stretchers, blankets, splints, and dressings both on the surface and underground.

Table 31 indicates that 41 percent of the strip mines have no first-aid equipment. First-aid facilities at strip mines are on the surface, and vary in characteristics. They may be located at the field office of the stripping operation or at the tippie. The

TABLE 31.—*First-aid facilities at 29 strip mines*

	Number of mines	Percent
No first-aid facilities.....	12	41
First-aid facilities.....	17	59
Total.....	29	100



amount of equipment may vary from a few simple dressings to blankets, stretchers, and splints. As the first-aid material may be several miles from the stripping operations or on a different highway, the injured are commonly taken directly from the scene of the accident to the hospital.

### *Auxiliary Medical Personnel*

Auxiliary medical personnel was observed at 57 mines or 22 percent. Registered nurses, male attendants, and trained full-time, first-aid men constitute this group, the majority of which are employed at mines with adequate equipment.

As only 28 percent of the mines were adequately provided with first-aid facilities both above and below ground and as only 22 percent have auxiliary medical personnel, it is indicated that a low percentage are prepared to render immediate emergency medical care to injured miners if the "on-call" physician is not available at once.

### *Ambulance Service*

Following emergency medical care at the mine, the injured man usually is transported to the hospital by ambulance. Ambulance service, provided in the majority of instances by local mortuaries, was found or reported to be available when summoned at 98 percent of the mines. Infrequently, the operator, the union, or the local hospital provided ambulance service. Ambulances used by 87 percent of the mines were adequately equipped with stretchers, blankets, first-aid material, and heaters. It was observed that the dangerous practice of transporting an injured man to a hospital unaccompanied by a trained first-aid attendant is prevalent.

The distance involved in transporting an injured miner from the mine to the hospital is recorded for 188 mines. The average distance is 17 miles; however, distances ranged from 1 to 160 miles. Eighty-three percent of the mines are 1 to 30 miles from a hospital.

### *Medical Care*

The medical care of industrial injuries is made a responsibility of the employer by State workmen's

compensation laws in all bituminous-coal-mining States.

Arkansas, Illinois, Kentucky, Ohio, Oklahoma, Maryland, Michigan, Utah, Virginia, Washington, and Wyoming have compulsory statutes which require every employer within the scope of the compensation law to accept the act and pay the compensation specified. Alabama, Colorado, Iowa, Indiana, Kansas, Missouri, Montana, New Mexico, Pennsylvania, Tennessee, and West Virginia have elective statutes in which the employer has the option of accepting or rejecting the act.<sup>4</sup>

In many States the miner may choose the physician whom he desires to have serve him. Frequently, this choice is exercised freely; in other cases, the miner accepts the services of a physician designated by the mining company. Likewise, the miner may be taken to a hospital of his choice or may use the hospital designated by the mining company. Less disabling injuries may be treated as ambulatory cases, in which circumstance the miner is attended by the physician of his choice, a physician designated by the company, or a physician with whom he has a contract for prepaid medical care of nonindustrial illness and injury.

Throughout the period of the Survey, there were indications that the company physician, designated as the individual receiving the check-off for non-industrial care, was rendering services in the care of industrial injuries without submitting claims for service to the compensation commission. In the course of the Survey, the question was consistently asked as to whether or not the mining company employed a physician on a fee, salary, or retainer basis for service rendered in the care of industrial injuries compensable under the workmen's compensation law of the State; the replies to these inquiries were predominantly in the negative. To clarify the situation with regard to compensation-type practices, the assistance of the Compensation Commission of the State of West Virginia was sought and obtained.

<sup>4</sup> State Workmen's Compensation Law as of June 1, 1946; U. S. Department of Labor Bull. 73 is quoted as follows:

Compulsory and elective laws. Compensation laws may be classified as compulsory or elective. A compulsory statute is one which requires every employer within the scope of the compensation law to accept the act and pay the compensation specified. An elective act is one in which the employer has the option of either accepting or rejecting the act, but in case he rejects it he loses the customary common law defenses—assumed risk or the employment, negligence of fellow servants, and contributory negligence.

In explaining the problem involved, it became evident that the present system of contract practice in the coal-mining industry was not completely understood by the commission. In several instances, officials of the commission advanced the statement that an individual doctor who received the check-off was the employer's doctor. The official erroneously believed that the physician was employed by the company and cared for industrial injuries as part of his employment. When specific instances were cited, in which the physician was known to receive no salary from the company but a check-off from the employees for general medical care, it was demonstrated that the commission was in error in presuming that the physician received compensation from the company.

A brief examination of a few compensation records indicated there was justification for the assumption that the physician receiving the pay-roll deduction

of the miners cared for industrial injuries without submitting a claim for such service. It was, therefore, decided that accident reports and claim records of a few mines should be examined. The commission officials granted permission for such an examination.

In West Virginia, it is required that each accident occurring in a coal mine be reported to the compensation commission, in compliance with the State law. Immediately upon receipt of the report, a claim number is assigned and the accident recorded, regardless of whether or not the injured man submits a claim for compensation or the report indicates a compensable accident. Following this procedure, reports and claims for service are submitted by the attending physician. The analysis involves a study of the accident records, the physician's reports of treatment, and the physician's claims for service rendered (see table 32).

*Emergency treatment of injured man by company doctor at a Pennsylvania mine. In many States a miner injured while at work may choose the physician whom he desires, and frequently this choice is exercised.*



TABLE 32.—Study of claim records of physicians independently attending accident cases at a group of coal mines

Mine	Physician	Cases	Claims submitted <sup>1</sup>	Percent of total cases
A.....	Company <sup>2</sup> .....	47	2	4
A.....	Noncompany.....	4	4	100
B.....	Company.....	21	3	14
B.....	Noncompany.....	16	15	94
C.....	Company.....	0	0	0
C.....	Noncompany.....	112	98	88
D.....	Company.....	38	12	32
D.....	Noncompany.....	8	7	88
E.....	Company.....	3	3	100
E.....	Noncompany.....	1	1	100
F.....	Company.....	6	1	17
F.....	Noncompany.....	8	6	75
G.....	Company.....	9	5	56
G.....	Noncompany.....	10	10	100
Total.....	Company.....	124	26	21
Do.....	Noncompany.....	159	141	89
Grand total.....		283	167	59

<sup>1</sup> Request to compensation commission for payment of fee for services rendered.

<sup>2</sup> "Company physician" is a colloquialism and is used here to refer to a contract physician who receives a pay-roll deduction for care of nonindustrial illnesses and injuries.

TABLE 33.—Study of claim records of physicians jointly attending accident cases at a group of coal mines

Mine	Cases attended jointly by—					
	Company physicians <sup>1</sup>			Noncompany physicians		
	Cases	Claims submitted	Percent of total cases	Cases	Claims submitted	Percent of total cases
A.....	7	0	0	7	7	100
B.....	12	1	8	12	12	100
F.....	7	0	0	7	7	100
Total.....	26	1	4	26	26	100

<sup>1</sup> See footnote 2, table 32.

<sup>2</sup> Request to compensation commission for payment of fee for services rendered.

Mines previously surveyed in West Virginia were selected for this special study. These mines are

not specified by name but are indicated in table 32 by alphabetical designation. Mines A, B, E, F, and G do not employ a physician for the care of industrial injuries on a salary basis. The physicians engaged in contract practice, associated with these mines, provided nonindustrial medical care to miners and their dependents, and also provided industrial medical care, claims for which must be submitted to the State compensation commission for approval.

Mine C gave a physician a salary for preemployment physical examinations only. This company offered employees who suffered industrial injuries a choice of physicians. Nonindustrial medical care at this mine was administered by a mutual benefit association, maintaining a panel of physicians.

At mine D the physician derived his salary solely from miners' pay-roll deductions for nonindustrial medical care. This physician was designated by the company to handle industrial injuries; it was stated that he received the fee for his service from the workmen's compensation commission.

Of the 324 reports analyzed, the accident experience of the 7 mines in 1945 revealed 185 lost-time accidents, 105 non-lost-time accidents, 4 fatal accidents, and 30 accidents for which the record of disability was incomplete. Of the 324 accidents reported, there were no records of claims submitted in 15 cases; 124 were treated by the company physicians, 159 by noncompany physicians, and 26, not by 1, but by 2 physicians—the company physician and a noncompany physician. Of the 124 cases treated by the company physicians, claims were submitted in only 26 instances. Of the 159 cases treated by the noncompany physicians, claims for services were rendered in 141 instances. In the 26 cases treated by the company physicians and a noncompany physician, the company physicians submitted a claim in 1 instance, and the noncompany physicians submitted 26 claims. From this study, it is indicated that the company doctor submits claims in only 21 percent of the cases treated and that the noncompany physician submits claims in 89 percent of the cases treated. Where the company doctor and a noncompany physician treat the case, it is shown that the noncompany physician submits a claim for service in all instances.

At mine C, where a mutual benefit association

administered nonindustrial medical care and where the mining company, in the cases of industrial injuries, permitted the men a choice of physicians, it was observed that claims for services were submitted for the majority of the cases treated.

At mine D, where the physician received his remuneration solely from pay-roll deduction for nonindustrial medical care and submitted claims for service in compensation cases, it was observed that claims submitted to the compensation commission are, roughly, one-third the number of cases attended. In the same series, eight cases were treated by a noncompany doctor, for which seven claims were submitted to the workmen's compensation commission.

The records of the other mines, with one exception—mine E—indicate that very few claims are submitted for the cases treated.

It appears from this study, which was based upon a small number of mines, that the physician who receives the check-off for nonindustrial medical care by failing to submit claims for the care of industrial cases in essence furnishes medical care for the employer at the expense of the individual employee.

This subject has been touched briefly, to show the possibility of evasions of the workmen's compensation law. This issue should be investigated by the workmen's compensation commission and the medical profession, with a view to more stringent enforcement of the provisions of the law. See Appendix for table as it pertains to workmen's compensation laws in major bituminous-coal-mining States.

## *Rehabilitation*

Rehabilitation has been defined as "the restoration of the handicapped to the fullest physical, mental, social, vocational, and economic usefulness of which they are capable."<sup>5</sup> It means that a disabled person has been placed in a remunerative job at which he can work efficiently and safely; his abilities have been evaluated, and he has been placed at the peak of his skill; he has been put on a self-sustaining basis; and his morale has been strengthened. The objective—

known as industrial rehabilitation—is accomplished by the process of selective job placement.

In another sense, rehabilitation refers to the steps in accomplishing this goal. The principal services involved are guidance and council, surgical repair or medical or psychiatric treatment, training or education, and, in some cases, the furnishing of prosthetic appliances (artificial limbs, eyes, etc.). Restoration of morale and social and emotional adjustments may be involved. The process of rehabilitation is an individual problem and cannot ordinarily be achieved by the restoration of disabled persons in groups. Varying degrees of disability, education, age, capacity, energy, spirit, and determination render each case an individual problem. Vocational training may be one of the most important factors, to teach a handicapped worker to do a new job or to do the old job satisfactorily despite his handicap. Rehabilitation should be started as early as possible.

Public agencies and voluntary organizations have been established for assisting the rehabilitation of practically all impaired persons. Some of the handicapped are not aware of this service, and others may not feel that it will benefit them. All such persons should be referred to appropriate agencies as early as possible to minimize the demoralizing effect of actual impairment or subsequent inability to obtain employment.

As far as it has been possible to determine, there has not been a comprehensive program, or even any program at all for rehabilitating the disabled within the bituminous-coal industry. The large number of casualties from the two recent world wars have incited public opinion as it has never been aroused before to the need for rehabilitating the physically handicapped.

Management and Labor should assume joint responsibility in finding ways and means to assist a handicapped individual. In many instances, the most important service that can be rendered is to refer a disabled employee to a specialized agency that not only knows how to evaluate the disability but is in touch with and is familiar with facilities available for training and placement. States receive financial aid for medical and vocational rehabilitation from the Vocational Rehabilitation Program of the Federal Government.

<sup>5</sup> Definition adopted by the National Council of Rehabilitation, August 1943. *Bridge, Clark D., Job Placement of the Physically Handicapped: McGraw Hill Book Co., London, 1946.*

## DISCUSSION

In the coal industry, where working conditions are among the most hazardous and where serious traumatic injuries occur, the prevention and treatment of surgical shock are vitally important. Seventy-two percent of the surveyed mines are inadequately prepared to render emergency medical care to the seriously injured. Early treatment of surgical shock is essential, for the longer it is delayed the more critical the degree of shock becomes. It is estimated that in most instances an injured miner is transported from the working face of the mine to the portal and retransported from the portal to the nearest hospital in about 2 hours or less. Where adequate facilities for emergency treatment are not available, this element of delay results in serious consequences, occasionally terminating in fatality. The successful treatment of shock depends upon the control of pain and hemorrhage, the maintenance of body heat, and replacement of body fluids. During the recent war, it was the experience of medical officers in combat areas that immediate treatment of shock with plasma was a life-saving measure.

Plasma and other intravenous fluids were observed at very few first-aid stations. It would be ideal if antishock treatment could be administered at the scene of the accident and in the depths of the mine. However, this is not practical, for the responsibility for the administration of the most effective emergency antishock measures—morphine and plasma—cannot be delegated to inexperienced, unqualified, lay personnel. Again, it would be ideal if fully equipped first-aid facilities, staffed by trained professional auxiliary medical personnel, could be maintained for the emergency treatment of injured miners. The importance of having available the services of a registered nurse at the surface medical facility cannot be overemphasized.

It is feasible and essential, however, that all mines establish and equip adequate first-aid facilities. These should be located at the portal and at reasonable intervals within the mine. In addition to items selected by the mine physician, the minimum equipment to be provided should be blankets, dressings, splints, and stretchers.

Many small mines cannot afford to employ trained auxiliary medical personnel. Other mines may have difficulty in hiring such personnel because of the shortage of properly qualified persons. Where it is impossible to obtain trained auxiliary medical personnel, provisions should be made to train intelligent and dependable individuals to whom responsibility for the first-aid facility and its service can be assigned. Mine superintendents, supervisors, foremen, office personnel, engineers, and store managers, who may reside upon the premises of the mine and are usually immediately available, constitute a group of men from whom individuals may be selected for training in advanced first-aid practices under medical supervision.

It is now generally accepted that occupational diseases should be compensated. Fifteen major bituminous-coal-mining States<sup>6</sup> have occupational disease laws, whereas 6 States do not.<sup>7</sup> West Virginia provides only for silicosis. Some State laws list the diseases that are included; others cover all so-called occupational diseases. An outstanding development in this field in recent years has been the increasing use of general coverage. The provisions regarding payments for disability or death, and medical care of occupational diseases, are usually the same as for industrial injuries, with the exception of silicosis or other diseases associated with dust, for which separate provisions are made.

There are, undoubtedly, many diseases that are acquired by coal miners in their environment that may be considered occupational in nature. The scope of this Survey did not allow investigation and thorough review of all diseases that may be directly or indirectly associated with the coal miners' working environment. It is recognized that insufficient attention has been paid to this subject by the industry and associated medical personnel.

Medical records of the bituminous-coal industry do not disclose the presence or incidence of various occupational diseases. The absence of generally

<sup>6</sup> Arkansas, Colorado, Illinois, Indiana, Kentucky, Maryland, Michigan, Missouri, Montana, New Mexico, Ohio, Pennsylvania, Utah, Virginia, and Washington.

<sup>7</sup> Alabama, Iowa, Kansas, Oklahoma, Tennessee, and Wyoming.

applied X-ray examinations does not permit determination of the prevalence of silicosis and tuberculosis among coal miners.

Physical examinations as conducted at present are not comprehensive enough to be of the greatest benefit or to furnish a true index upon which to evaluate disease prevalence. The physicians responsible to Management have failed to conduct proper studies of the environmental hazards of the coal-mining industry or to insist upon surveys by industrial hygiene specialists. As a result, conditions predisposing to disease may not be suspected until disability occurs. Failure to recognize exposure to silicosis may result in development of the disease to a disabling point, when the mining company may be obliged, by the occupational disease law, to provide compensation. General study, early diagnosis, and knowledge of the hazards enable a physician to recommend preventive measures and to remove from exposure those individuals manifesting early stages of disease. This results in benefit, not only to the miner, but also to his employer.

A critical study by industrial physicians of the factors involved in fatalities results in the improvement of first-aid practices. For example, an official record

of one death, resulting from traumatic amputation, revealed that the cause of death was assigned as "hemorrhage and traumatic shock." Time, transportation, and lack of initial first-aid treatment contributed to this fatality. Were these factors properly evaluated and improvements introduced, death due to such cause might be avoided.

In many instances where the living and working environment of the miner have factors in common, the relationship of poor sanitation to illness interfering with the miner's industrial effort has not been explored. The physician has opportunity to observe the effects of personal hygiene and sanitation by study and analysis of disease and conditions related to absenteeism. Such observations by mine physicians may stimulate the development of sanitation within mining communities.

Recognition of the value of industrial hygiene and medicine by Labor and Management and the general application of research and study, over a period of years, by the medical profession will reveal the causes, nature, and means of preventing occupational diseases and injuries. In turn, these will bring immeasurable benefits to the health, welfare, and happiness of the coal miner.

## General Medical Services



A majority of the bituminous-coal miners in the United States and their families receive their medical care through a prepayment system, under which the miners pay for physicians' services in advance by regular deductions from their pay. This system, which has only within recent years been introduced among the general population as a means of distributing the costs of medical care, is traditional in the bituminous-coal industry. Its genesis in the coal fields is unknown, but there is evidence that the system existed in the middle of the nineteenth

century. That some form of prepayment plan was in vogue then in the coal fields is apparent from the recorded observations of James M'Killop, a Scot, who, in 1869, visited the Cumberland fields of western Maryland and other sections of the United States where coal was then mined. "The off-takes on his (the miner's) paybill, are \* \* \* \$1 for doctor \* \* \*," he wrote in describing the various monthly deductions from the miners' wages. (See Preface.)

The remoteness of mining communities, their limited communication with other settled areas, and

the other factors that compelled mining enterprises to include, along with their industrial structures, housing, water supplies, commissary stores, and other necessary provisions for their workers, also compelled them to attract and retain medical practitioners. Doctors were necessary not only to take care of the ailments common to people everywhere but also to treat the injuries inherent in the highly hazardous industry of coal mining. As an incentive for physicians to establish themselves in these isolated places, the wage deduction or check-off system was instituted to provide them an assured minimum income.

Tradition and custom have perpetuated the system; and today, even in areas where many coal-mining communities are near urban centers, camp doctors still are found. There are long valleys or hollows in the Appalachians and broad canyons in the western Rockies dotted with mines and populated heavily enough to make it appear that physicians could practice profitably without the incentive of prepayment plans, yet the prepayment system of medical care persists. Despite the extensive development of communications and transportation and the expansion of population in many of these areas, which have modified their insularity, a psychology of isolation survives. Each mining camp feels that it must have its own doctor; each camp or small group of camps continues a prepayment medical-care plan of its own. Thus, the over-all picture of medical care is that of very numerous, small prepayment schemes of a type originally established to provide medical care when the individual patient had little, if any, opportunity for choice of physicians.

The Navy Medical Corps officers assigned to the Survey set out to determine the following: The extent of the prepayment system of general medical care in the bituminous-coal industry; regional differences, if any, in utilization of the system; the comprehensiveness of the services rendered under the various general prepayment plans; the manner of selecting physicians; the various ways in which plans are administered; the quality of medical care given to miners and their families; and the medical facilities available to miners.

Data were obtained from physicians, mine oper-

ators, union officials, medical societies, and miners and their dependents. At each of the 260 mines selected for the Survey, the members of the Survey teams determined what doctors were taking care of the miners and sought to interview them at their offices or dispensaries, so that these facilities could be observed at the same time. In the many places where a single physician, or an affiliated group of physicians, was in residence at the mine or maintained offices at nearby mines, the surveying medical officers had little difficulty in conversing with them. In other places where company camps were established, especially where the miners lived in incorporated municipalities and therefore received their medical care from a wide choice of physicians on a fee-for-service basis, the Survey members interviewed a selected number of the many physicians who were serving the miners and their families. Those physicians who were known to be participating in prepayment plans were interviewed whenever possible in the presence of representatives of the mine management and the local labor union, in view of the fact that in most of these plans a contractual relationship exists between the doctors and Management, Labor, or both. In many instances an additional interview with the physician was conducted.

### *Extent of Prepaid System*

The Survey findings show that, in order to provide for that phase of medical care for miners and their dependents which is offered by physicians in their offices or in the homes of their patients, some form of prepayment plan is available to the employees at 155 (59.6 percent) of the 260 mines. (Medical services provided in hospitals are discussed in the succeeding sections of this Report, "Hospitalization" and "Hospital Facilities".) The 155 mines employ more than 70 percent of the miners involved in the Survey (see table 29), and it is believed that, because of the sampling procedure used (see *Launching the Survey*), this percentage approximates that of the bituminous-coal miners throughout the country who have readily available medical-service prepayment plans. Where such plans are in effect, the estimated participation of the employed miners and their families averages more than 95 percent.





*A camp doctor's office in the back room of a company office building, meagerly equipped and with dirty walls and floors. About 13 such poor offices were encountered by the Survey Teams.*

At 105 of the mines sampled, employing almost 30 percent of the miners, no prepayment medical programs of this nature were in operation. Most of the employees of these mines and their dependents live in or near urban communities where private practice is carried on and the patient pays a fee for services, as is common throughout the country.

Prepayment plans in the bituminous-coal industry are limited primarily to mine employees and their dependents. Only in some places are others than coal-mining families permitted to become subscribers. Thus, miners and their families, except at some mines that were observed in the State of Washington, participate in an industry-type prepayment system

rather than in any of the several prepayment plans sponsored by State and county medical societies, which are open to all occupational groups and are currently gaining popularity throughout the Nation, particularly in urban areas.

Prepayment plans for general medical services are less common in mining communities than prepayment plans for *hospitalization*. Sixty percent of the sampled mines have the former type of plans available to their employees as compared to 66 percent having hospitalization plans. The hospitalization systems in most instances are conducted separately from general medical-care plans. The employees at 136 mines, however, have available both types of plans or a

combination plan. Thus, at half of the mines surveyed, what is purported to be complete medical service is available to the employees. On the other hand, the employees of about a fourth of the mines participate in neither hospitalization nor medical-service prepayment plans.

### *Regional Differences*

Marked regional differences were found in distribution of prepayment plans for general medical care. This distribution bears a close resemblance to the distribution of company housing; the plans are more prevalent in areas where housing is provided or has been provided in the past by mine operators and almost entirely absent in areas where company camps have either been unnecessary or have not been provided by the operators and, therefore, the mine employees have been assimilated in the general diversified population. The physicians who serve the small proportion of miners who live in or near municipalities have not been inclined to encumber themselves with contracts that would tend to limit their practice to the coal-mining occupational group. Thus, the frequency of prepayment plans ranges from the highest in the predominantly rural Southern Appalachians and Rocky Mountains, in those localities where coal mining is the principal industry, to the least in the highly industrialized and urbanized mid-western areas. (See table 34.)

Prepayment plans for medical service are most common in the coal fields of Area II (southern West Virginia, Virginia, Kentucky, Tennessee, and Alabama), where 92 of the 107 mines surveyed, or 86 percent of these mines employing 93 percent of the miners in the area, offer service of this type. If western Kentucky, whose coal fields adjoin those of Illinois and Indiana, is considered separately, the percentage of mine employees to whom medical-care plans are available in Area II rises to 97. In western Kentucky, medical-service plans were found to be available at only 1 of the 9 mines visited. The coal-mining regions of the States in Area II are predominantly rural, except for a few metropolitan centers, such as Birmingham and Charleston. Many of the small cities, such as Bluefield, Welch, Logan, Harlan, Hazard, and Williamson, are essentially coal-mining

communities, as their sustenance and growth depend upon the coal industry.

In the Far Western States, Colorado, Montana, New Mexico, Utah, Washington, and Wyoming, which comprise the major part of Area V, prepayment plans for general medical service also are general. Here, also, one finds that the coal-mining regions are in predominantly rural areas, frequently some distance from large urban centers, such as Denver and Salt Lake City, although close to smaller cities like Price, Utah, Rock Springs, Wyo., and Trinidad, Colo., which in themselves depend largely upon the coal-mining industry for their existence. In the Far Western States, 85 percent of the mines surveyed (having 95 percent of the miners employed in these sampled mines) utilize prepaid medical service. It was also observed that, at half of the mines surveyed in this area, general medical service was combined with hospitalization, a single check-off being made for both. The doctors providing general medical service also were associated with the hospitals caring for the subscribers. Such combined plans were found to be uncommon in other areas.

Although Area I (comprising Pennsylvania, northern West Virginia, Maryland, and Ohio) is the most productive bituminous area in the United States, it is also an area that is highly urbanized and heavily populated; it contains numerous diversified industries, and therefore cannot be described as predominantly a coal-mining region. Of the 92 mines surveyed in this area, prepaid medical service was available in 43. Sixty-six percent of the employees at all the surveyed mines in this area were eligible to participate in a prepayment plan as compared with more than 90 percent in the Southern Appalachian and Far Western States. In this region are such urban communities as Pittsburgh and some smaller cities, which are regarded as excellent medical centers; large numbers of physicians are engaged in private practice and offer the miners a wider choice of doctors when they prefer to have their medical needs met on a fee-for-service basis or under prepayment systems that are not limited to mine employees.

In Area IV medical-care plans were found in the mines visited in Arkansas only, with none in Oklahoma, Kansas, and Missouri. Although no company housing was observed at the mines in this area,

TABLE 34.—*Distribution, by coal-mining areas and districts,<sup>1</sup> of mines at which employees utilize prepayments medical service plans*

Area and district	Number of mines—		Percent of mines surveyed	Number of employees at mines—		Percent of employees in survey
	Surveyed	With prepayment plans		Surveyed	With prepayment plans	
<i>Area I</i>						
District 1. Central Pennsylvania <sup>2</sup> .....	31	15	48	8,016	5,921	74
District 2. Western Pennsylvania.....	32	13	41	10,164	5,467	54
District 3. Northern West Virginia.....	18	10	56	3,858	3,241	84
District 4. Ohio.....	7	2	29	2,074	935	45
District 6. Panhandle West Virginia.....	4	3	75	1,108	1,008	91
Total Area I.....	92	43	47	25,220	16,572	66
<i>Area II</i>						
District 7. Southern No. 14.....	27	27	100	11,417	11,417	100
District 8. Southern No. 24.....	57	53	93	17,808	16,527	93
District 9. Western Kentucky.....	9	1	11	1,753	266	15
District 13. Alabama <sup>3</sup> .....	14	11	79	4,629	4,392	95
Total Area II.....	107	92	86	35,007	32,602	93
<i>Area III</i>						
District 5. Michigan.....	2	0	0	157	0	0
District 10. Illinois.....	21	0	0	6,124	0	0
District 11. Indiana.....	7	0	0	1,216	0	0
District 12. Iowa.....	2	0	0	251	0	0
Total Area III.....	32	0	0	7,748	0	0
<i>Area IV</i>						
District 14. Arkansas-Oklahoma.....	4	3	75	403	296	73
District 15. Southwestern <sup>4</sup> .....	5	0	0	467	0	0
Total Area IV.....	9	3	33	870	296	34
<i>Area V</i>						
District 16. Northern Colorado.....	1	1	100	113	113	100
District 17. Southern Colorado <sup>5</sup> .....	6	4	67	689	560	81
District 18. New Mexico.....	2	2	100	190	190	100
District 19. Wyoming.....	3	2	67	733	715	98
District 20. Utah.....	5	5	100	985	985	100
District 22. Montana.....	1	1	100	49	49	100
District 23. Washington.....	2	2	100	252	252	100
Total Area V.....	20	17	85	3,011	2,864	95
Total of Areas I-V.....	260	155	60	71,856	52,334	73

<sup>1</sup> Districts as set forth in the Bituminous-Coal Act of 1937.<sup>2</sup> Includes Maryland, and Grant, Mineral and Tucker Counties, W. Va.<sup>3</sup> Includes part of Virginia and southeastern West Virginia.<sup>4</sup> Includes southwestern West Virginia, eastern Kentucky, northern Tennessee, and part of Virginia.<sup>5</sup> Includes southern Tennessee.<sup>6</sup> Includes Kansas, Missouri, and part of Oklahoma.<sup>7</sup> Includes Colfax County, N. Mex.

it is believed that the presence of the prepayment system exemplifies the hold of tradition in the coal-mining industry. The coal fields along the Arkansas-Oklahoma border are in hilly country, primarily rural, and except for such adjacent cities as Fort Smith, Ark., and Muskogee and Henryetta, Okla., contain very little manufacturing industry. Most of the underground mines are very small. Their operation is intermittent and predicated on the demands for coal, which are greater during the winter months. In parts of Oklahoma and Arkansas, and also in the adjoining States, Kansas and Missouri, strip mining has become relatively highly developed; and, in accordance with the findings of the Survey that prepayment plans are rarely utilized by employees at strip-mining operations, it was not surprising that the few mines observed in these places had no prepayment systems in effect.

In Area III (Illinois, Indiana, Iowa, and Michigan), a major bituminous-coal-producing region, prepayment plans were generally absent. In these States, particularly in the level or rolling country of western Indiana and southern Illinois, miners and their dependents intermingle with and live alongside other industrial workers, farmers, and people of other occupational groups. Except for a few centers such as the city of West Frankfort, which are populated to a large extent by coal-mining people, the miners' activities are integrated with those of the other inhabitants. Independent activities, other than those affiliated with their occupation, are rare. Only in the few predominantly coal-mining centers were the miners found to be participating in the prepaid medical service characteristic of their industry. In the contiguous coal fields of western Kentucky, which

is far less urbanized and industrialized than Illinois and where the terrain is more rugged and the highway system not so extensive, a small percentage of mines were observed to have plans providing medical care. Of the mines surveyed there, those employing 15 percent of the miners had the prepayment plan for general medical care, but a much larger percentage had hospitalization plans available.

### Charges to Employees

Virtually without exception, prepayment is made by pay-roll check-off. The amount deducted from the pay envelope for medical service (not including hospitalization) ranges from 75 cents to \$3 monthly for unmarried participants, and from \$1.20 to \$3 for married employees with dependents. The average cost per employee is \$1.36 and \$2, respectively. (See table 35.)

### Services Provided Under Plans

The usual services rendered by physicians participating in the prepayment systems are exemplified by the few written contracts made available to the Survey. Almost invariably these contracts provide:

1. Payments by subscriber through periodic, regular deductions from his wages.
2. A fixed charge for the single worker and a higher fixed charge for the miner with dependents.
3. House calls to be made for necessary attendance upon the sick or injured in their homes, provided subscribers live within the company camp or within prescribed geographical limitations. Extra charges authorized for house calls beyond this zone.
4. Married men with dependents who live outside the prescribed zone may participate in most instances upon payment of the same monthly rate charged to unmarried miners. (Single

TABLE 35.—Monthly subscription rates of prepayment for medical service plans (exclusive of hospitalization plans) to participating employees of 131<sup>1</sup> surveyed mines, by areas

	Area I		Area II		Areas III, IV, and V		Total	
	Single	Married	Single	Married	Single	Married	Single	Married
Number observed.....	38.....	38.....	85.....	85.....	6.....	7.....	129.....	130.....
Mean.....	\$1.16.....	\$1.85.....	\$1.41.....	\$2.07.....	\$1.78.....	\$2.02.....	\$1.36.....	\$2.....
Range.....	\$0.75 to \$2.....	\$1.37 to \$2.50.....	\$0.75 to \$3.....	\$1.20 to \$3.....	\$1 to \$2.50.....	\$1.50 to \$3.....	\$0.75 to \$3.....	\$1.20 to \$3.....

<sup>1</sup> Includes only those mines (of the 155) where charges for participation in medical service plans could be separated from charges for participation in hospitalization.

men pay a fixed rate, whether living inside or outside of the zone.) Patients in this category receive full benefits of the plan, except for home calls, which must be paid for on a fee-for-service basis, plus, in some instances, a mileage charge, usually 50 cents a mile one way, from the doctor's office.

5. Treatment of venereal diseases is excluded from the prepayment plan.

6. Obstetrical service is excluded (with a few exceptions) but may be granted for an additional fee, which ranges from \$10 to \$75 per confinement, the exact amount depending on a predetermined schedule set at each mine.

7. Simple medications to be furnished by the physician without extra charge. Vitamins, hormones and medicines given by injection may be charged for at rates in harmony with those made by private physicians.

8. Dependents are defined as spouse and unemployed minor children but may include any other person who has been residing continuously in the household of the subscriber and who is not capable of gainful employment, has no independent sources of income, and depends solely on the employed person for support.

9. The contract may be terminated by either party upon 30 to 60 days written notice.

## *Benefits and Exclusions*

The benefits and exclusions incorporated in the contracts (oral as well as written) with mine physicians have a characteristic pattern that does not deviate markedly from one mine to another or from one section of the country to another. Complete data as to benefits and exclusions were obtainable at 142 of the 155 mines where prepaid medical-care plans were available. Only incomplete information was obtainable at the other 13 mines. The similarity in the contracts indicates a common historic origin and a reluctance to experiment or to adjust the pattern to varying conditions of geography and time.

At 137 (96.5 percent) of the 142 mines having prepaid medical-care programs upon which complete data were available, home calls within the confines of or within a specified distance from the camps are provided for at no extra charge.

Subscriber-employees of all 142 mines are unlimited in the number of office calls they may make. At 5 of the mines the prepayment scheme provides only for services that may be given by the physician in his office or in the outpatient department of a hospital.

With few exceptions, an extra charge is levied for house calls when the subscriber's residence is beyond

a prescribed distance from the physician's office. In some contracts it is specified that this surcharge shall be at the rate of 50 cents a mile (one way) from office to residence. Married subscribers living outside the prescribed area may be charged, according to most contracts, the prepayment rate fixed for single men (who usually pay the same rate regardless of place of residence), plus regular or reduced fees for house calls.

Formerly, drugs and medicines prescribed by the physician were furnished without extra charge, the physician doing his own dispensing. As the science of medicine progressed and new, costly therapeutical biologicals and chemicals were developed, the practice of making extra charges for these was introduced. At 137 (96.5 percent) of the mines, the furnishing of "ordinary medications" is included in prepayment dues. However, the definition of ordinary, or usual, medications varies from place to place. Hormones, vitamins, vitamin-containing compounds, and biologicals or chemicals are charged for additionally in all but a few places. A few of the physicians interviewed said that they provide penicillin without extra cost. Some stated that they consider it legitimate to make a profit on the more expensive



*Home calls are made by contract physicians without extra charge, provided the subscriber and his dependents live within prescribed geographical limits.*



*Camp doctors provide ordinary medications to patients without extra charges, as part of the services rendered to subscribers of prepayment plans.*

medications which they prescribe and sell, but the majority stated that they supply these drugs at cost price. In the offices of two mine physicians, price lists of intramuscular and intravenous medications were posted, which indicated that these doctors make an appreciable profit. These parenteral preparations were advertised by the two doctors as "cold shots," "lumbago shots," "rheumatism shots," "vitamin shots," and similar panaceas.

Routine immunization against typhoid fever and smallpox is administered without cost under the prepayment systems operated at 114 (80.3 percent) of the mines. Physicians at the other mines charge extra for immunizations and also for the vaccines, except when they are furnished free by the State health departments.

There is evidence that the incidence of venereal diseases was quite high in the early days of the coal camps. Physicians found that a considerable proportion of their time was taken up with treating these conditions. Stigmatized as "misconduct" infections, it was felt that the expense of treatment

should not be borne by all of the subscribers; consequently, an extra charge was levied for this type of care. This special provision remains in effect today in all but a few agreements. Venereal diseases are treated without extra charge, except for the parenteral medications used, under the provisions of 17 (12 percent) of the programs. At several of these 17 mines the Survey teams were informed that this liberalization had been effected recently to obtain approval by the local union of an increase in the amount of the pay-roll check-off for medical care. A number of physicians stated that they send their syphilis cases to rapid treatment centers operated by State health departments.

In maternity cases, home delivery is available without extra charges to the wives of miner-subscribers at only 7 (4.9 percent) of the mines having prepayment plans. For the remainder, these extra charges range from \$10 to \$75, the costs being lowest in the Southern Appalachians. However, prenatal and postnatal care is given to a limited degree without additional cost under the provisions of 103 (72.5 percent) of the plans. Conversations with physicians disclosed a tremendous need for education of the mining population regarding the advisability of prenatal and postnatal care. It is only during recent years that the women in certain coal-mining areas, particularly in the Southern Appalachians, have been impressed with the desirability of having physicians for obstetrical care. In some regions the women even today eschew a doctor's services in favor of a midwife or the assistance volunteered by neighbors.

If the miner needs services the company doctor cannot provide, for any reason, he may engage another physician on a regular fee basis. Such fees for services rendered are charged, even though the latter physician may be administering a prepayment agreement of similar type among the workers of an adjacent mine. In only three known instances did the Survey encounter agreements which specify that the physician, if not available, shall assume liability for payment of an "outside" physician. Arrangements were implied or written into some of the contracts for the doctor to provide a replacement during a vacation period. The system provides for the services of only the doctor or doctors who are parties to the contract.

## Dental Services

Dentists are seldom found in typical mining communities. They have not been attracted into these areas and are generally in urban communities only. There are many opportunities for members of the dental profession within the coal-mining areas of the country. Dental care, included as a service to be provided to subscribers at reduced rates, was found to be available to the participants of the prepayment plans at only two of the mines surveyed.

## Contracts and Agreements

Physicians furnishing medical care to miners on a pay-roll check-off basis enter into contracts with the coal company or the local union, sometimes both. It was found in the Survey that the contract for providing medical care on a prepayment basis is generally not written, but consists of an *oral agreement* or understanding between the physician and Management to provide for the miner and his dependents. Of the 155 mines where contract practice is in vogue, there are 86 unwritten contracts, 34 are in writing, and information was not available for the remaining 35.

Most commonly, where there is a *written* contract, it is entered into between the doctor and the Union, with the approval of Management. In one case observed, the physician, motivated by a desire to protect the traditional patient-doctor relationship, refused to sign a contract with either the Union or the company. Instead, he entered into separate written agreements with each of his prepayment patients, who authorized the employer to deduct the proper sum from their pay and to turn it over to the physician.

## Selection of Physician

In years past, Management assumed most of the responsibility with regard to the selection of company physicians. More recently, the unions have written into their contracts the privilege of having a voice in the appointment of the doctor or doctors.

Both Management and Labor appear in a few instances to have abused their responsibilities and

privileges. This is evidenced by the fact that the physicians were not selected primarily on the basis of professional qualifications and the character of facilities and services that were offered, but on the basis of personal friendships, financial tie-ups, social viewpoints, or other nonmedical considerations. Competition among doctors for prepayment contracts may be quite brisk. The quality of professional services, that can be offered is a bargaining point, but it is known that doctors have occasionally obtained contracts by their talents for ingratiating themselves with company officials or influential leaders of the Union.

Several instances were noted where poorly qualified physicians or others not appropriately licensed are receiving the pay-roll deduction for medical care. In one case a druggist with no medical training was practicing medicine in an isolated Kentucky community, receiving a share of the pay-roll check-off along with two regularly qualified physicians. The



Coal mine physician visits miner's wife with infant which the doctor has recently delivered. In maternity cases home delivery is provided without extra charges at less than 5 percent of the mines having medical service prepayment plans.

latter were compelled to accept this condition by the local union committee so long as the pseudo-physician "does the right thing." Their acquiescence was motivated, they said, by the fear that labor trouble would result if they insisted upon the druggist's elimination as a sharer in the pay-roll deductions. In another instance the son of an elderly company physician was found to be carrying on the father's practice in spite of the fact that his training has gone no farther than 1 year of dental school.

A few physicians who were questioned admitted that an understanding existed between themselves and the operators that, in exchange for receiving check-off funds, they would not charge the company for performing preemployment physical examinations or rendering certain other industrial medical services, such as treatment of minor industrial injuries. Certain of these physicians expressed their resentment as to the necessity for making such an arrangement in order to be approved by the management for receipt of the medical-care check-off. On the other hand, two physicians volunteered that they offered the mining company this inducement in order to obtain the appointment over their competitors.

At 81 (59.7 percent) of the 137 mines in the Survey where preemployment physical examinations are conducted and where physicians receive the pay-roll deductions for medical care, the managements stated that they do not pay doctors a salary, fee, or retainer other than the pay-roll check-off. In other words, a fair number of contract physicians are apparently performing certain industrial medical duties for the privilege of obtaining the pay-roll check-off of the miners, or for the privilege of submitting an occasional claim to a compensation carrier for services rendered to injured miners, or both.

Management may exert considerable influence upon the selection of physicians by withholding company-owned office space or living quarters from a doctor whose appointment is not approved by the operator. Management is generally of the opinion that it is wholly within its rights if it refuses to make a pay-roll deduction for transmittal to a physician whose selection it has not approved.

In addition to Management and Labor, doctors who are already employed at mines or who have contracts for services under prepayment plans in some

places exercise a voice in the selection of additional physicians, especially where assistant doctors are needed. In some instances, the voice of the senior doctor in the community is strong enough to constitute the only manner of choice, so that any applicant physician who fails to receive his approval cannot be employed.

Another way in which doctors are selected is by custom or default. In other words, an assistant doctor may succeed to the office of the senior physician when the latter dies, retires, or moves away from the community. Thus, the assistant assumes all of the obligations and privileges of the senior without any written or specific oral agreement with the mine management or with the people in the community.

In this way, contract practice among general practitioners has been perpetuated and administered by physicians in accordance with custom and tradition, with relatively the same services rendered for the amounts received and with the same exclusions of services from the system for which the miner must pay extra. Oral agreements and "understandings" thus serve, to some degree, in place of written contracts which should describe the services that are to be provided for the amounts prepaid.

### *Financial Administration of Plans*

Financial administration or supervision of the numerous plans under which prepaid medical services are rendered is vested in varying degrees in Management, local unions, and physicians. Expressed statistically, 127 of the mines surveyed operate prepaid medical-care plans that are considered to be controlled primarily by the contract physician, in that the money accumulated each month by wage deductions is turned over directly to him; 14 are company-sponsored, the company retaining all of the funds accumulated by the check-off, for which it provides medical facilities and salaried physicians; 8 are administered or controlled by the union, which handles the funds raised for medical care by check-off; and 5 are administered by a joint commission, board, or mutual benefit association. At one and the same mine, 2 separate prepayment plans were available, 1 administered by the coal-company



management and the other by the union. This unique situation came about because of dissatisfaction among a number of miners with the plan administered by the management. Further comment on this unusual situation is made in the hospitalization section of this report.

In a few instances involving the larger coal companies, the management hires physicians who bear the title of "medical director." Several medical directors provide comprehensive industrial medical and hygiene programs, but in only a few cases was anything observed akin to the true practice of the speciality of industrial medicine. As a rule, the same physicians who handle the industrial medical problems of the companies also engage in the general practice of contract medicine among miners and their dependents.

A few companies claim to subsidize prepayment plans so that their employees may have the benefit of a community physician and a physician will be available to handle industrial accident cases. As evidence of this contention, some companies opened their books to the investigators to prove annual deficits amounting to thousands of dollars. However, for one mining company, members of the Survey found reason to believe that administration of its medical-care plan is yielding a profit. This company hires physicians on a salary basis, and the total cost of their salaries and administrative expenses amounts to less than the aggregate deducted each month from the pay envelopes of the employees. A similar situation probably exists in one other mining company, where the medical director appeared to be receiving an exorbitant salary or the mining company seemed to be making a large profit; however, it was not possible to substantiate the facts, as the company refused to make the financial data available to the Survey group. Several mining companies admitted charging 5 to 10 percent of the amounts deducted from the pay roll for "defraying bookkeeping costs." The same companies levied no bookkeeping charges for other pay-roll deductions.

During the course of the Survey, six mines were observed to conduct outstanding company-administered systems of prepaid medical service. Here Management has provided excellent facilities, including efficient, well-equipped dispensaries or hospitals.

At four of the six mines, hospitalization and medical care are both provided under a unified plan. The managements of certain large coal corporations and captive mines were particularly noted to have made these excellent provisions for protection of their employees' health.

At the great majority of the mines surveyed where prepaid medical care is in operation, the contract physician receives the check-off funds and administers them in his own way. His selection for receipt of the check-off or "cuts" was almost invariably by Management, often with the approval of representatives of the local or district union, or he has been accepted by both Management and Labor as the only physician available. Some of these physicians have received the check-off from several mining companies for many years past, in fact, over such a period of time that written contracts have been lost and the established system of services provided has become almost traditional with the participants, many of whom have never obtained medical care on other than this contract basis. These physicians are the typical general practitioners of the coal camps, and many are elderly.

At some mines, arrangements for prepaid medical care are administered by a commission, board, or mutual benefit association committee upon which Management and Labor are represented. This group, by whatever name it may be called, audits receipts and expenditures and acts as an advisory board to the doctor, bringing to his attention any grievances originating within the union.

Union-administered plans were noted at only eight mines. Under this system, the contract physician may receive a straight salary from the union, or the total check-off may be turned over to him. One union local has a medical-service committee whose members each receive \$40 a month for their help in administering the prepayment plan.

### *Labor's Concern in Medical Care*

In recent years, problems associated with the administration of prepaid medical services have resulted in the interjection of certain pertinent provisions within the labor contracts between coal operators and the several district organizations of

the United Mine Workers of America. Labor attempts to have a voice in the medical services rendered to its members are illustrated by the following excerpt from the district agreement of August 25, 1941, among the Northern West Virginia Coal Association and the International Union, United Mine Workers of America, and District 31 of the union:

Where collections are made over the pay-roll for medical attention, the following rates shall prevail:

Married men—\$1.50 per month

Single men—\$1.00 per month

The above charges are to be collected in semi-monthly installments. Where mutually agreed to by the Mine Workers and Operator at any mine, the above rates may be increased.

A Committee of three employees representing the Mine Workers at any mines, and the Operator or his representatives (not to exceed three), where collections for medical services are made, shall locally work out the type of service to be furnished by the Doctor for the amount paid. It is understood that all money collected shall be applied to the maintenance and expense of the Medical Service.

When Doctor fails to carry out the type of service agreed upon, the matter shall be referred to the District Officials and the Operator. If the District Officials and the Operator cannot reach an agreement, the matter shall be referred to the Joint Labor Board as a grievance.

Another such example is afforded in the Wage Agreement Between Southern Appalachian Coal Operators Association and District 19, United Mine Workers of America, of April 1, 1945, as follows:

For the purpose of handling medical and hospitalization services, it is agreed that a committee shall be selected, two members representing the mine workers, selected by the mine workers and subject to the approval of the District President, and two members representing the company, selected by the company and subject to the approval of the President of the Southern Appalachian Coal Operators' Association, whose duties it shall be to pass upon the qualifications of all candidates who aspire to become the camp physician, after which the committee will certify the candidate or candidates for selection. All candidates must be men of good moral character, good standing in his profession, and a graduate of a recognized medical institution.

The company or the workers shall have the right to call for the election of a company doctor if either the company or the workers are dissatisfied with the doctor. The dissatisfaction of the workers shall be made known by a petition stating that they are dissatisfied with the doctor, which petition must be signed by a majority of the workers. In case either the company or the workers are dissatisfied with the doctor, the above-named committee shall be notified and the committee shall, within a reasonable length of time, arrange to hold an election in accord-

ance with the provisions herein described, and the doctor selected at such an election shall hold office until his successor is elected by the same procedure. The election shall be held by a secret ballot vote.

The same method of procedure shall prevail in connection with the selection of a hospital and the handling of insurance and burial funds.

It is understood and agreed that all persons employed at the mine, who contribute to the above named funds, shall have a right to vote at all elections on any questions involving these issues.

Should difference arise about the meaning and application of this doctor, hospital, burial, and insurance fund clause, it shall be handled under the "Settlement of Disputes" clause.

The union's concern in the medical care of its members is clearly expressed in section 4 of the Krug-Lewis Agreement, of May 29, 1946. (The full text of the agreement appears in the Appendix.)

### *Patients' Choice of Physicians*

The individual participant in the prepayment programs for medical care, as they are operated in the bituminous-coal industry, has limited, if any, freedom of choice of physicians. Unless he wishes to pay extra sums of money out of his pocket, to obtain the services of a doctor who is not associated with the prepayment plan in effect at the particular mine where he is employed, the miner must accept the services of the contract physician. In some places, the contract physician is the only doctor available; often, a contract physician cares for the employees of several mines. According to the data obtained in the Survey, approximately 220 physicians were associated with medical-service prepayment plans at the 155 mines where they were in effect. This figure of 220 does not include physicians who are available at hospitals under the hospitalization prepayment plans or industrial physicians who may be employed by coal companies on other than a prepayment-plan basis. Neither does it include the very numerous contract physicians who are associated with the prepayment systems at the many mines which surrounded the sampled mines. Where two or more physicians are practicing at some mines or groups of mines, the participant in the plan is usually assigned to only one of them.

Most of the physicians practicing medicine among

the coal-mining population were found to be well-represented in medical societies and organizations. Comparatively few of the doctors limit their practice to one or another of the various medical specialties; nearly all are in general practice.

In a relatively large number of coal districts, particularly in the Appalachians, there are valleys dotted with mines, or sections clustered with mines, where enough physicians are engaged in contract practice to constitute a panel or group. If several of the independent prepayment plans could be grouped, the participants would then be enabled to have a choice of doctors, limited only by the size of the group. Furthermore, the participant would probably have a physician to call on in an emergency if the physician of his choice is away. The doctors, likewise, would find themselves better able to rotate their practice when it was necessary or desirable for any of them to attend professional meetings, or engage in other desirable professional activities away from their offices. However, under the prevailing customs, each participant is assigned to the particular doctor who receives, directly or indirectly, the miner's check-off; the doctors, in turn, are assigned by the present contractual relationships to a specified group of mine families.

In numerous instances, mine employees participate in prepayment medical-care plans on a compulsory basis as a condition of employment, as a condition of union membership, or both. This is not to say that it is necessary to use compulsion. Where plans are voluntary, there is a very high percentage (over 90 percent in many places) of participation also, partly because of the unquestioned acceptance of a traditional system and partly because the miners have confidence in the value of the system. In the few mining communities where others than employees of the mining company are permitted to participate in the general medical-care plans (as well as the hospitalization programs), there is an appreciable membership from those living close to the community.

### *Facilities for Treatment*

At only 17 (6.5 percent) of the 260 mines surveyed, the companies have erected and equipped excellent

dispensaries, which are utilized for industrial medicine and ordinary medical care of miners and their dependents.

Company camp doctors' offices are generally in small frame buildings, for which Management charges nominal rent. The typical size is three rooms—waiting room, examination room, and drug room. Some of these offices are neat and well-equipped, but at least half are unattractive, meagerly furnished, and fitted with scarcely any more equipment than a general practitioner's bag contains. In 13 instances it was noted that the doctor's office was "very disorderly" or "dirty." At three of the mines visited, the doctors' offices were described as "insanitary." A few of the physicians maintaining unattractive and disorderly offices in company camps conducted private offices in nearby towns to handle noncontract cases. These offices, where patients were seen on a fee-for-service basis in normal competition with other physicians, invariably were tidy, well-kept, and adequately equipped.

For example, 1 physician holds contracts for the medical care of all employees and their dependents at 6 mines, 2 of which were sampled. This doctor receives an average \$2 monthly check-off from the mine employees, totaling more than 680 pay envelopes. Additional income is derived from miscellaneous extra charges and the care of private patients. Two of his offices at mine camps were inspected. Both are housed in small, poorly maintained, company-owned buildings.

One of these office buildings, for which this doctor pays the company \$12 a month rent, was on a hillside, with a path leading up a moderately steep embankment to the office door. To reach the office, patients must cross railroad tracks and climb the embankment. No steps were provided. The structure was unpainted, and a leaky roof admitted rain water into the waiting room. An antiquated bench was the only furniture in the waiting room. Equipment of the inner office consisted of an unpadded wooden examining table, an old desk, two unsteady chairs, and a small table. A hydrant near the railroad tracks provided the water supply. The windows had old, torn shades and were unencumbered by curtains or draperies. Dust blanketed the shelves, where a few bottles of medicine were dis-



*Camp doctors' offices are generally in small frame buildings, such as the one in the upper photo. At least half of the offices are unattractive, and some are very disorderly.*



*Upper photo: An unusually attractive and well-constructed building for offices of the doctor at a coal-mine camp in West Virginia. Lower photo: The attractive office of a company doctor at a coal-mining community in Kentucky.*

played. Used swabs and soiled bandages were piled high in an open coal grate. The only instruments and diagnostic equipment observed were those that came out of the doctor's bag. Where this office constitutes the medical facility, the physician has been reported to receive an annual gross income of approximately \$3,600 from the medical check-off at this one mine alone.

Another case in point is that of a company doctor who serves the employees of two mines and their dependents. His subscribers number approximately 350, with married men paying \$2.50 a month and workers without dependents \$1.25. He operates two offices, one in each of the mining camps, both of which are small buildings rented from the managements. In contrast with the office described above, both of these facilities are tastefully furnished and have running water and sanitary plumbing, which were installed by the doctor rather than by the company. Each office contains a room with modern physical therapy equipment, with screens permitting two or more patients to be accommodated at the same time when necessary. Both offices were well-stocked with ample supplies of basic medicines for dispensing to patients. Both had scales, diagnostic instruments, modern examining tables, electric sterilizers, and other equipment that the office previously described lacked. Another point of difference is that this physician engaged a registered nurse on a part-time basis.

The above would tend to indicate that quality of maintenance and equipment of contract doctors' offices are influenced less by lucrativeness of practice than by the practitioner's conscientiousness and pride in giving his patients the best and most of which he is capable, within a prepayment system that tends to minimize competition among doctors and permits little freedom of choice of physician by the individual patient.

Information obtained at a selected number of bituminous-coal mines indicates that approximately 70 percent of the Nation's bituminous-coal miners, with their dependents, receive general medical services through participation in prepayment plans. At certain larger coal-mining companies, including

It is axiomatic that the extent of utilization and the value of medical-care facilities, such as dispensaries and doctors' offices, depend upon the availability and competence of professional personnel. Conversely, it is also true that the availability of good doctors frequently depends upon the existence in a community of suitable physical facilities. The availability of such facilities, residential as well as professional, is of importance in attracting and holding a qualified physician, secondary only to the income which the physician may earn in the community. Commonly heard was the story of doctors establishing themselves in certain coal-mining areas, practicing for a short time, and then departing for neighborhoods where better accommodations were available.

### *Attitudes Toward Prepayment*

The quality and character of the medical facilities at the mines, which are used by mine physicians for general medical practice, the limited choice of physicians, the ways in which physicians are selected, and the exclusions under the prevailing prepayment plans, all have given rise to numerous dissatisfactions that were readily expressed to members of the Survey teams. Many of these causes of dissatisfaction were imaginary or based on misunderstanding, but many also had a basis in fact. Such grievances were expressed by Management, by Labor, by physicians, and by the patients. On the whole, and despite these grievances, it was apparent to the Navy medical officers that the concept of a prepayment system for medical care was acceptable to all parties and that abandonment of the principles of prepayment would not only be resisted, but would be undesirable. All groups acknowledge, however, the need for, and the desirability of, marked improvements.

## DISCUSSION

captive operations, the administration and operation of the plans appear to be outstanding in that good facilities for medical practice and adequate staffs of physicians are provided, and a wide range of services is available to the subscribers. At a majority of the mines, however, dispensaries and

offices range from adequate to very poor; practitioners are overburdened; and there are evident tendencies in a number of places to give less consideration to the quality of medical care than to profits.

The irregular operation of some of the smaller mines and the financial instability of certain mine enterprises have been cited as justification for some of the crowded, inadequate medical facilities—offices, equipment and furnishings, drug supplies, laboratories and apparatus—that were noted. The investigation, however, indicated that, where facilities and services were found to be poor, such deficiencies were often due to careless management; lack of interest by operators, unions, or physicians—occasionally all three—in the miners' health; and limited professional competition under a system that lends itself, by the manner of its operation, to the adage that "the less the doctor does and the more contracts he can get, the more money he makes."

One of the major shortcomings in administering the prepayment system in the coal fields is the exclusion of certain medical services generally included in other prepayment systems as benefits. The most outstanding of these is treatment for venereal diseases and the care of obstetrical cases.

In the light of modern concepts of venereal disease control, it is felt that the present discrimination against treatment is indefensible. This exclusion, which is of many years standing, owes its beginning to two factors: First, the belief that these so-called "misconduct" infections should be penalized and, second, the lengthy period of treatment formerly required. Neither premise is valid any longer. Attachment of stigma to syphilis and gonorrhea has long since been recognized as an unwholesome deterrent to efficient treatment and a promoter of dangerous self-medication. Developments of the past decade, which has witnessed the introduction of the sulfanilamides, penicillin, and other chemotherapeutic or antibiotic implements having dramatic effect against venereal infections, will have been largely in vain, as far as benefits among the mining population are concerned, if their application is discouraged by the medical prepayment contract.

Many of the medical prepayment plans in effect in other than coal-mining areas generally include

obstetrical attention, albeit with certain restrictions in the interest of actuarial soundness. There is no doubt that the high infant and maternal mortality rates in certain counties with a high percentage of coal-mining people (see section on Public Health) could be materially reduced through the encouragement and stimulation of prenatal care, hospital delivery, and postnatal care, which would accompany a more liberal attitude in the medical prepayment contract toward childbirth.

Contracts, moreover, rarely provide for payment of medical specialists. Elimination of this weakness would result not only in a higher quality of care for prepayment subscribers and their dependents but would also attract specialists to coal-mining areas, where their services are seriously needed. To effectuate this improvement, the proprietary hospitals would have to broaden their attitude toward admission of specialists to staff privileges.

The volume of objections to the general policy of making extra charges for all but the most common drugs indicates that liberalization of contracts is desirable also in this regard. Quite understandably, it would be economically impossible to furnish costly drugs and biologicals without limit. However, it is believed that careful examination of this problem would disclose that a middle ground is attainable.

The extra costs that the miners must incur because of exclusion of many benefits constitute only one of the causes of complaints voiced against medical care in the coal fields. The miners, however, are not alone in expressing dissatisfaction. The operators, the union officials, and the doctors themselves have grievances, often justified.

Representatives of Management have frequently expressed the view that, despite all of their efforts to provide the best possible medical service to their employees and their dependents, their motives are misunderstood and their actions greeted with suspicion. They have stated that they must listen to a great many petty and unjustifiable complaints. Further, they have declared, the bookkeeping work of making wage deductions for medical care is a burdensome and costly chore. Many have said that they would be glad to be relieved of the burdens imposed on them.

The workers and their local union officials fre-

quently complained that they have too little voice in selecting the physicians who receive the pay-roll check-off for medical care. Their twofold grievance in some locations is that they must submit to the company's choice of a doctor and then be satisfied to patronize only him, or the assistant whom he assigns, whenever it becomes necessary to seek medical services.

In some instances, the objection was raised that the prepayment-plan subscribers do not have their physician exclusively to themselves. The inference here is that the doctor who augments his check-off income with fees from noncontract patients tends to show a preference to his "private cases" when there are conflicting calls for his attention.

Heard not infrequently was the charge, which investigation showed to be sometimes justified, that, where Management selects a prepayment-plan doctor on condition that he performs preemployment physical examinations and cares for industrial injuries without expense to the company, subscribers are indirectly paying for a financial obligation of the company. Thus funds intended solely for medical services to miners and their dependents may be diverted into another channel. Union officials also claim that some doctors give prejudicial testimony in the employers' favor in compensation cases.

Obviously there is need for some clear thinking with reference to the financial responsibility of Management in industrial medicine, and also with reference to the dividing line between industrial medical services and general medical services for employees and their dependents. Management's clear financial responsibility includes provisions for medical care for industrial accidents and occupational illness and has been specifically indicated by the passage in most States of workmen's compensation laws, some of which include coverage of certain occupational diseases. It is also widely conceded that, where industrial physical examinations are conducted, they, too, are part of the industrial medical program for which Management is responsible. Management likewise, must take all possible active measures to prevent occupational injuries and illnesses.

Management should, moreover, be actively interested in the availability of public health and sanita-

tion services for the population of the coal-mining communities. These factors are important to the problem of availability of healthy workers and thus are related to industrial medicine. Indeed, sanitary services in company owned or leased settlements constitute a definite financial responsibility of those operators who have established communities at the mine sites.

General medical care for employees and their dependents, on the other hand, is not generally considered to be an obligation of the companies. In certain localities, such as isolated coal-mining towns, financial assistance for the provision of both medical personnel and facilities for general medical service may become, in some measure, a moral obligation of Management. Some mining companies are discharging this moral obligation in an outstanding manner, even to the extent of subsidizing the prepayment plans for medical care. It is little wonder that district union officials frequently express suspicion that the doctors involved in general contract practice are controlled by Management, when such physicians involved are believed—justifiably in some instances—to be influenced to engage in certain industrial medical practices without compensation other than the privilege of receiving the medical-service check-off.

From the contract physicians' standpoint, the most troublesome feature is that prepayment tends to make people too doctor-conscious, so to speak. Many doctors interviewed claimed that unnecessary demands are made upon their time that would not even occur to the participants if they had to pay for each house call and each office call, or if the first cost of any one illness were to be borne by the subscriber.

Physicians also describe numerous visits by grievance committees who present petty and often unjustifiable complaints. Some of these grievances occasionally constitute an essential interference with the doctor-patient relationship.

Analysis of the dissatisfactions reveals some disadvantages associated with prepayment programs whose memberships encompass such a large segment of the mining population. The fundamental flaw is the mode of payment to the contract physician. That the check-off sums should be remitted directly



to the individual physician by Management—or Labor either, for that matter—is basically fallacious if the welfare of the patient-subscriber is of prime consideration. It is recognized that this procedure, which eliminates administrative costs in handling the prepayment funds, is responsible for the presumed relatively low cost of the existing system.

This very factor, which reduces cost of administration, also is linked inextricably with (1) limited choice of physician, the check-off generally going directly to one doctor; (2) limitation of competition among doctors; and (3) discouragement of specialists. This factor is also related to third-party control of medical-service funds to the extent that physicians are occasionally expected to ingratiate themselves with the third party (Management or Labor) in order to be selected to receive payment. Third-party administration is desirable only if such an individual or organization has no alliances with the other parties to the contract and if its interest is solely the business administration of the contract.

There are, and will be, circumstances in the various coal-mining districts where payment of a guaranteed income or salary will be desirable or necessary, especially in those isolated or sparsely settled places to which physicians could not be attracted or held by hope of earning a reasonable income on a fee-for-service basis. Good medical practice under any method depends to a large degree on adequate facilities and the existence of opportunities for physicians to advance themselves professionally and financially; but where physicians are guaranteed a minimum income or salary, adequate facilities must be furnished by the employing agency, and professional supervision and opportunities for advancement become essential. The importance of these factors is demonstrated clearly in some coal-mining areas, especially Area II; here the facilities observed at places where the capitation system of direct payments to the physicians is customary were substandard and noticeably poorer than those of other facilities in the area. The major exceptions were noted in places under medical supervision. In other regions, where the capitation plans were in effect but where the physicians also depended on additional sources of income, the facilities at the disposal of the physician ranged

from satisfactory to excellent. The fee-for-service system is the customary method of paying physicians throughout the country and the one that, when coupled with freedom of choice of physician by the patient, is believed to offer the greatest assurance of wholesome competition in any situation where several physicians are practicing in a given area. Broader application of this system of payment in the coal-mining areas is suggested.

The methods of selecting physicians and the artificial limitations on the numbers of physicians at any one place under the present methods of operating the prepayment system in the coal fields have promoted a tendency on the part of some physicians toward monopolistic control of medical practice in their areas and have drastically and, in most places, wholly restricted the participants' choice of doctors.

The most common type of prepayment plan in the industry is that in which the sum authorized by, or required of, the employee for monthly deduction from his pay is remitted by the mine operator directly to one physician. In a few instances, one doctor serves large prepayment memberships, under contracts which he holds with several mines, thus limiting competition where additional physicians could well be used. The contract-holder may hire assistant physicians and assign them to specific segments of his prepayment membership, profiting by the difference between the monthly sum of check-off receipts and the salaries he pays to the assistants. In a few instances, the controlling physician does not live or practice near a mine, functioning more as a medical business manager than as a doctor.

Even when there are three or four assistants, the participants are not at liberty to choose from among them. In most of the coal-mining areas, numerous contract physicians are practicing in such close proximity to one another that if their separate plans were unified or coordinated, the subscribers could have a choice of physicians, limited only by the size of the physicians' group (which could include many now practicing in coal-mining areas on a fee-for-service basis), and would more probably have a physician available at all times.

It is indisputable that many physicians have been attracted to unprepossessing areas by a guaranteed minimum income each month. This economic ad-

vantage, then, is responsible in large measure for the fact that mining communities are as well-stocked with physicians as they are. This should be borne in mind when changes in the present system of prepayment are considered, lest this advantage of contract practice be lost. Under any revision of the system, provision should be made for a subsidy, retainer, or minimum salary, or other suitable method of payment for physicians who are willing to practice in such relatively isolated localities of small population to which otherwise they might not be attracted.

Many of the mine physicians participating in contract practice believe that prepayment by pay-roll check-off is essential to the provision of medical care in most mining communities. They feel that miners are so habituated to the pay-roll check-off, not only for medical services and hospitalization, but also for rent, coal, light, insurance, and union dues, that it would be folly to remove such a necessity as provisions for medical attention. The implication was strong that if it were left to miners to budget for medical and hospitalization expenses, little would be set aside for this purpose, in contrast with the certainty of the pay-roll check-off. They candidly state that the miners' sense of financial responsibility, regardless of the size of income, is such that medicine may be practiced among them adequately on no other basis than prepayment.

Doubtless there are many advantages to the miners in the prevalence of a prepayment system of medical care in the coal fields. These advantages are inherent in any "insurance"-type system, where the risk is spread over a large group of people. Although originally conceived as a matter of necessity, the prepayment system in the coal fields has evolved, principally through increase in membership, into a plan which has the fundamentals of other systems where economic burdens are lightened for the individual through the distribution of costs. Under the prevailing system, therefore, miners and their dependents are protected to a marked degree against large or disastrous outlays of funds in times of medical emergency.

Few administrative costs are associated with the handling of funds derived from the medical-service pay-roll check-off. In the normal system observed,

the coal-mining company turns the moneys directly over to the physician, who is the contracting party; and, theoretically, the total amount is dedicated to the subscribers. There are local exceptions, such as the deduction of 5 to 10 percent of the check-off by some companies for "handling" and nominal salaries paid to medical committees in union-sponsored plans. In general, however, administrative costs are small; thus the overhead expenses should be lower than those of plans that require payment to an outside administering agency.

In some States prepayment plans sponsored and approved by medical societies and other voluntary organizations are in operation, but the mines are not utilizing them to any degree, except in the Northwest. In the State of Washington, the men at one mine enrolled in such a plan were contemplating a shift to another available plan, which was in competition with the State medical society plan, in the belief that the competing plan is less expensive and has greater coverage of medical services. Elsewhere, other than in the Northwest, contract physicians are not participating in such plans because they apparently prefer the income guaranteed by capitation.

It would appear that certain basic changes in the administration of miners' funds for the provision of medical care should be made, notwithstanding the fact that higher monthly premiums may result. The New York State Legislative Commission on Medical Care<sup>1</sup> estimates that, in this State, a comprehensive plan for medical care, including medical services, hospitalization, nursing service, and limited dental work, would cost at least \$30 per capita annually. On the basis of such an estimate, the cost to the miner with three dependents would be \$120 a year, compared with approximately \$48, which he is now paying to support medical and hospitalization services (combined), the contract limitations of which are manifold and varied.

Most of the causes of dissatisfaction and difficulties hindering efficient, equitable operation will not be eliminated until prepayment funds for medical services—and hospitalization as well—are administered by a representative body so constituted as to be above suspicion of partiality to the mine

<sup>1</sup> New York State Legislative Commission on Medical Care for the People of New York State: Feb. 15, 1946.

operator, the physician, the union, or the miner. The objectives of the administering agency should be to provide the maximum of service to the individual patients at the lowest possible cost per individual subscriber, which is consistent with regard (a) to adequate remuneration to participating physicians for services rendered, (b) to expansion and improvement of medical facilities, and (c) to the furthering of medical science.

Improvement in administration of medical prepayment plans will be accompanied by the formulation of equitable contracts, formalized on paper and with privileges and limitations clearly defined, unlike the loose arrangements that characterize the plans operated today in coal-company camps. Absence of written contracts and of descriptive literature delineating the benefits, exclusions, and conditions under which medical services are given produces much misunderstanding, particularly when the physician levies extra charges for drugs or services. It is no more than reasonable that the subscriber should know what he is buying with his prepayments.

A desirable requisite of any sound medical prepayment system is freedom of choice of physician from among all legally qualified doctors who desire to participate. Assignment of patient to only one physician, as usually practiced in the coal fields today, is unsatisfactory. Furthermore, the participating physicians should be paid from a fund centrally administered by a nonprofit agency or association, on the basis of specific services performed, or, where necessary or desirable, on a salary. When the current income of money in this fund falls below the current obligations to the participating physicians, the participating physicians might be paid for their services on a pro rata basis. Compensation on a fixed-fee basis, comparable to the methods adopted by approved prepayment programs now in operation in various parts of the country, should provide a wholesome type of professional competition, where member physicians practice and where there are opportunities for other physicians to practice, particularly when coupled with a freedom of choice of physicians.

Appropriate checks must be included within the plans to prevent abuses by over-indulgent physicians and unnecessary and excessive demands by

patients.<sup>2</sup> To prevent such unwarranted practices, consideration should be given to proposals that the subscriber should pay some moderate portion of the first cost of each illness.

One salient feature of a few of the contracts is a credit provision. In an industry such as coal mining there are periods of idleness or enforced work stoppage other than strikes during which, through no fault of his own, the miner is not earning. Provided that he is willing to make advance payments or "make up" his back payments upon return to work, he may be "covered" during the idle period. This factor must constitute an important actuarial consideration in setting up any new type of prepayment plan that may be utilized widely by the coal-mining occupational group.

On the basis of the observations and the factual data gathered during the 4-month period of investigation in the coal fields and during subsequent periods in conferences with professional groups, certain modifications in the principles and operation of the prevailing prepayment system of medical care for bituminous-coal miners and their dependents are indicated. Careful consideration should be given to modifying the present system in accordance with fundamentals delineated in the succeeding section of the report dealing with hospitalization plans.

The medical profession has now recognized the economic and social soundness of certain types of prepayment plans. It has studied the numerous experiments that have been conducted in this field and the plans now in existence.

If, in the future, those provisions of the Krug-Lewis Agreement which pertain to the use of the medical and hospital funds are to be consummated, it is believed that the United Mine Workers of America should consider the development of, or participation in, a prepayment plan or plans conforming to the principles outlined above. Furthermore, it is believed desirable to obtain the advice and assistance of those branches of, or organizations of, the medical profession experienced in the operation of prepayment plans.

<sup>2</sup> Bureau of Research and Statistics, Social Security Board, *Medical Care Insurance: a Social Insurance Program for Personal Health Services*: Report to Committee on Education and Labor, 79th Cong., 2d sess., print 5, July 8, 1946, pp. 37-38.

Not the least of the numerous problems to be encountered in such a venture is that of gaining the cooperation and participation of those members of the medical profession who are at present practicing in the coal-producing counties. The newly formed Association of Mine Physicians can become a useful factor for improving medical care throughout the bituminous-coal-mining areas. If that organization is to be regarded as the leader of medical practices in those regions, it must accept the challenge that certain changes must be made within the prepayment system, in which most of its members are involved.

An urgent need exists for the medical profession in each of the coal-mining States to develop, in cooperation with Management and Labor, actuarially sound prepayment plans, which will furnish the maximum of medical service coverage at the lowest cost consistent with continued improvement of medical services and facilities, and opportunity for future scientific progress.

The development of such plans by the medical profession with the United Mine Workers of America and mine operators would contribute to the solution of many health problems of the people in the bituminous-coal-mining industry.

## Hospitalization



Just as the majority of the bituminous-coal miners of the Nation and their dependents receive their general medical services under a system whereby the major costs are borne by payments in advance, through wage deductions, so do they receive their necessary hospital care and hospital medical services. With the advent of hospitals in the isolated coal fields, the then existing prepayment system for general medical care was readily adapted to hospitalization. As a result, prepayment plans for both types of medical care, each complementing

the other, flourished concurrently. In the majority of places, the two plans—one for general medical services and the other for hospitalization—are maintained separately; but in a few places, the plans were merged to provide “complete” medical care, financed by single deductions from wages.

In its study of the hospital care available to the employees (and their families) of the 260 selected mines, the Medical Survey teams endeavored to determine: The extent of the prepayment system for hospitalization; regional differences, if any, in

utilizing the system; variations in the plans available under the system; the extent of the services rendered under the several prepayment plans; the comprehensiveness of the medical care offered under both the hospitalization plans and the general medical service plans; the costs to subscribers; the various ways in which the hospitalization plans are administered; and the size, distribution, ownership, and characteristics of the hospital facilities.

Data were obtained from representatives of the operators and the local unions at each mine; from hospital administrators, both professional and lay, at institutions that had hospitalization contracts; from administrators of certain voluntary nonprofit

prepayment plans; from officials of mutual benefit associations and insurance companies; from chief surgeons of some of the mining companies; and from a few hospital commissions (comprised of representatives of Labor, Management, and the hospital). With few exceptions, each hospital having a contract with a mine or group of mines included in the 260 selected for study was visited by a Survey medical officer. Representatives of Management and Labor were requested to be present, and in most instances were present, when administrators of hospitals with contracts were interviewed. Additional interviews with these administrators and with members of hospital staffs were held whenever practicable.

## HOSPITALIZATION PLANS

Two-thirds of all the mines visited, which employ 53,650 men or more than 75 percent of the 71,850 of the miners included in the Survey, were found to have prepayment hospitalization plans available to their workers. However, the extent of participation by the employees at these mines was observed to vary considerably, depending in part on the location of the mine, in part on the type of hospitalization plan available, and in part on whether membership was compulsory or believed by the employees to be compulsory. Membership in the plans ranged from a low of less than 10 percent at 1 mine to a high of 100 percent at several mines; membership at all of the mines where plans were available was calculated to average 90 percent. Of the 71,850 miners employed at all of the 260 mines visited, approximately 48,300 were recorded as participating in organized prepayment plans for hospital care and hospital medical services that are generally unobtainable under the prepayment plans for general medical services described in the preceding section. The remaining miners—almost one-third of the total—either did not care to subscribe to such plans or are employed at the mines where hospitalization plans are not available.

Of the 172 mines having prepayment plans for hospitalization, 136 also had prepayment plans for general medical services, and 29 of these mines had a combination plan. At 69, or 27 percent of the mines, neither of the plans was available.

### *Regional Differences*

Although hospitalization plans were available to employees and their families at a slightly greater number of mines than were general medical service plans, the former were more common in areas where the prepayment system of general medical care prevailed. For example, in Area II, comprising the Southern Appalachians and Western Kentucky, where 86 percent of the mines surveyed had medical service plans, 96 percent of the mines had hospitalization plans; in Area I, where 46 percent of the mines had medical service plans, only 45 percent had hospitalization plans.

The several similarities between the bituminous-coal fields of the hilly Appalachians and those of the mountainous West, such as the prevalence of company-owned housing in both regions, are accentuated by high percentages of both hospitalization and medical care plans in the two areas. Hospitalization plans were most common in Area II. In Area V, hospitalization plans also were common; 14 of the 20 mines surveyed had such plans, 10 of which were combined with general medical service plans, so that at these 10 mines a single check-off was made from the wages of each subscriber-employee for both services.

In Area IV, hospitalization plans were found to be in effect at the three mines visited in Arkansas which also had general medical service plans, and at two of the three mines observed in Missouri. None of the

three mines visited in Oklahoma and Kansas had either plan.

Area III presents a rather anomalous picture in that hospitalization plans were available at 9, or 28 percent, of the 32 mines visited, yet none of these mines had prepayment plans for general medical services.

In the relatively densely populated coal fields of Area I, where mining is only one of the numerous major industries, hospitalization plans were reported to be available at 41 of the 92 mines visited, as compared with 43 mines at which medical service plans were available. However, at only 28, were both plans available; 13 mines had hospitalization plans, and 15 had general medical service plans only. Almost half of the mines had hospitalization plans, but 77 percent of the eligible employees at these mines are subscribers, whereas in Area II, for example, more than 95 percent of the employees are subscribers.

### Charges to Subscribers

The costs of participation in the various prepayment hospitalization plans vary, depending primarily

on the type of plan available and on the geographic location of the mines. Monthly charges to subscribers, payment of which is made universally by pay-roll check-off, range from \$0.50 to \$4.80 for single miners and from \$0.75 to \$4.80 for married miners (and others) with dependents. (See table 36.) The average monthly charges in the bituminous-coal-mining industry are \$1.67 for single persons and \$1.88 for persons with dependents. Monthly subscription rates are the highest in Area II, ranging from \$0.75 to \$4.80 for single men and from \$1.00 to \$4.80 for married men with dependents and averaging \$1.90 and \$2.03, respectively. The monthly charges in the other areas are below the national average and do not differ substantially from one area to another.

At those mines where prepayment plans for both hospitalization and general medical services are available to the employees, the total monthly charges for participation in both plans range from \$0.75 to \$5.80 for single men and from \$1 to \$6.80 for men with dependents. (See table 37.) Averaging the charges for all the plans at the mines where employees could subscribe to 2 plans shows a rate of \$3.08 for single

TABLE 36.—Monthly subscription rates of prepayment plans for hospitalization (exclusive of plans for general medical services) to participating employees of 142<sup>1</sup> mines, by areas

Area	I		II		III, IV, and V		Total	
	Single	Married	Single	Married	Single	Married	Single	Married
Number of plans	32	32	100	100	10	10	142	142
Mean	\$1.13	\$1.48	\$1.90	\$2.03	\$1.09	\$1.63	\$1.67	\$1.88
Range	\$0.50 to \$2.25	\$0.75 to \$2.25	\$0.75 to \$4.80	\$1 to \$4.80	\$0.75 to \$1.85	\$1.25 to \$2.68	\$0.50 to \$4.80	\$0.75 to \$4.80

<sup>1</sup> Does not include those 30 mines (of the 172) where charges for hospitalization plans could not be separated from charges for general medical service plans.

TABLE 37.—Monthly subscription rates of prepayment plans for hospitalization and general medical services, to participating employees of 129 mines,<sup>1</sup> by areas

Area	I		II		III, IV, and V		Total	
	Single	Married	Single	Married	Single	Married	Single	Married
Number of plans	22	22	91	91	14	14	129	129
Mean	\$2.04	\$3.13	\$3.29	\$4.06	\$3.30	\$3.61	\$3.08	\$3.86
Range	\$0.75 to \$5	\$1 to \$5	\$1.50 to \$5.80	\$2.50 to \$6.80	\$1.75 to \$4	\$2.50 to \$5.50	\$0.75 to \$5.80	\$1 to \$6.80

<sup>1</sup> Includes only those mines (of the 136) where charges for hospitalization and general medical services could be separated from other benefits, such as accident or burial indemnity.

men and a rate of \$3.86 for persons with dependents. The charges for most of the plans were close to this average; only a relatively few plans charged much smaller or much larger amounts. At 22 mines where plans for hospitalization and general medical services are *combined* into a single plan with a single check-off, the monthly charges appear to be slightly lower than at mines where the charge for the 2 services is separate. The charge for the combined plan averages \$2.88 for a single man and \$3.13 for individuals with dependents.

### *Services Provided Under Hospitalization Plans*

Many differences were found in the hospitalization plans available at the 172 mines, but certain services provided for subscribers were common to all. These

universal services, which are furnished to single men, or to married men and their dependents, are as follows:

1. Admittance to wards of hospitals, with provision for bed and ordinary ward care (which included hospital board and nursing service).
2. Administration of routine medications, and dressings which are usually stocked and used in hospitals.
3. Use of operating rooms.
4. Diagnostic X-ray examinations.
5. Clinical laboratory examinations.

Of the many other services that hospitals are capable of providing, some are included as benefits specified in various plans, others are specifically excluded from certain plans, and still others—by far the majority—are not mentioned in most of the written hospital contracts and, therefore, are provided or not provided to subscribers in accordance



*A 12-hour-old baby with mother and father. Infant was delivered in home. Home deliveries are common in the coal fields partly because contract hospital plans usually exclude normal obstetrical care.*





*Routine nursing service is included in benefits under prepaid hospitalization plans. Special duty nursing is provided only at extra cost.*

with local custom or at the discretion of the agencies administering the plans.

Nine out of 10 plans provide for the services of a surgeon for beneficiaries of the plans, in cases where nonindustrial surgery is required. Exceptions were notable in the plans administered in Area I, where the services of a surgeon were furnished without additional charge in only 67 percent of the plans.

A few of the contracts provide that in emergency cases the subscriber or his dependents may go to a hospital other than the one specifically designated in the plans.

Only slightly more than a fourth of the plans observed throughout the industry provide for the hospital care of normal obstetrical cases without additional charge to the subscribers. However, many of these plans provide for the care (without

extra cost) of complicated obstetrical cases where surgical intervention is necessary.

Participants in one out of every three plans are privileged to have X-ray and radium therapy administered to them and their dependents, when necessary, without extra charges. Provisions for this treatment are more general in the contracts observed in Area II than in those of other areas.

### *Exclusions From Prepayment Plans*

The hospital care of certain cases is excluded either by specific provisions in a large number of the contracts or by custom and verbal "understandings" between the subscribers and the agency administering the plans. Hospital treatment for the following conditions is most generally excluded

from the benefits of the plans: Contagious diseases, tuberculosis (except for diagnosis), venereal diseases, mental diseases, alcoholism, and injuries related to intoxication or resulting from altercations and attempted suicide. About half of the plans specifically provide that hospitalization will not be provided to subscribers in cases, such as automobile accidents, where a third party may be responsible.

Inasmuch as the hospitalization of industrial injuries, and in some States occupational illnesses, is established by State laws and by custom as the responsibility of employers, the hospitalization plans in effect do not provide for the care of such cases. Also generally excluded are disabilities incurred in war service, which are assumed to be the responsibility of the Federal Government.

With respect to other services and therapy, there is wide variation in hospitalization plans; some specifically exclude them, others include them as benefits to the subscribers, but the majority do not mention them. Notable among these variables are the following: Incurable diseases, inoperable cancer, drug addiction, optical refraction for glasses, and out-patient clinical care of ambulatory illness, vaccines and sera, oxygen, liver extracts, hormone preparations, intravenous fluids, blood plasma and blood transfusions.

### *Waiting Periods*

The waiting period may be defined as the time that must elapse before a new subscriber to a prepayment hospitalization plan is entitled to all or part of the benefits and services specified. Usually the plans provide for immediate care of injuries, but in case of illness participants may have immediate care or may have to wait from as few as 10 days to as many as 90 days, unless they wish to pay the regular hospital fees. In those plans where a waiting period is specified in cases of illness, the average time is 15 to 30 days. For removal of tonsils a waiting period of about 3 months is most common. Longer waiting periods, generally ranging from 6 to 12 months, but averaging about 10 months, are specified in those plans that include maternity care as a benefit. Those plans that provide for care of recurrent attacks of chronic illness, other than surgical emergencies, usu-

ally specify waiting periods ranging from as little as 2 months to as much as 1 year.

### *Time Limits*

In most hospitalization plans, subscribers are not specifically limited to the length of time they may be entitled to hospitalization. A few plans, however, specify a time limit. Thirty days a year is the most frequent time limit specified, but some contracts specify as little as 20 days a year and others as much as 120 days a year. In some instances, the time limit is based on the number of separate admissions to the hospital, as, for example, five admissions not to exceed a total of 30 days of hospital service or not to exceed 90 days a year from each cause.

### *Administration of Plans*

The extreme variations in the benefits and exclusions specified in the various hospitalization plans available to miners throughout the industry are due in part to the variety of administering agencies. Hospitalization plans may be classified, in terms of the agency administering the funds, as follows: (1) Coal-mining company; (2) union; (3) hospital; (4) nonprofit association; (5) commission (representatives of the company, the union, and the hospital); (6) physician; and (7) commercial insurance company.

Because more than 1 prepayment hospitalization plan was available to the employees at some mines, 197 plans in all were found to be in operation at the 172 mines. The majority (61 percent) of these 197 plans were financially administered by hospitals; 13 percent by nonprofit associations; 8 percent by unions; 7 percent by indemnity insurance companies; 5 percent by physicians; 5 percent by coal-mining companies; and 1 percent by commissions.

The hospital-administered type of plan was observed to predominate in Area II, where 114 of 129 plans were of this type. Hospital-administered plans also were observed in Area I, in northern West Virginia and Pennsylvania; but none was found west of the Appalachians.

On the other hand plans offered by insurance companies were not utilized in Area II, whereas plans administered by a hospital commission were

observed only in Area I. Union-administered plans were observed mainly in Area V. Plans administered by all other agencies were found to be operative in all areas.

### *Hospital-Administered Plans*

The hospitals administering the funds of prepayment hospitalization plans usually are designated within the mining areas as contract or "list" hospitals. This local terminology is derived from the fact that a written contract ordinarily exists between the hospital and the representative of the subscribers. In some instances, the company is that representative; in others, company and union representatives may serve; but usually the union represents its members. This contract, in essence, establishes the subscriber as a beneficiary, as the individual does not enter directly into the contracting. The company is usually obligated to check off or deduct from the wages of the individual the necessary monthly premiums authorized by him.

Contracts for financial administration of all of the 122 hospital-type plans are held by 39 hospitals, all in the Appalachian area; 32 of these are proprietary, that is, privately owned and operated by individuals, partnerships, or corporations, and 8 are owned and operated by nonprofit associations. Eleven of these hospitals administer a single plan each; 5 have 2 plans each; 4 have 3 plans each; 5 have 4 plans each; 3 have 6 plans each; and 4 have 7 each.

Subscribers to plans that are administered by contract hospitals have no choice of hospitals, except for occasional provisions for emergency care. In a few instances, subscribers may be treated at other hospitals in cases of emergency; and when this occurs, hospital care is limited only to the period of emergency, and the patient must transfer to the contract hospital as soon as possible. The contract hospital reimburses the other hospital for the services that have been rendered to its subscriber patient.

A few contracts are made by the employees' representative with a group of hospitals characterized, for purposes of the contract, as an association. Such contracts permit the patient to select any one of the two or three hospitals in the association. In practice, however, the choice is not as extensive as

the contract may indicate, for the hospitals of the association may be widely separated by distance, and the subscriber ordinarily will select the one nearest his home. Such plans have been devised primarily to serve a mining company having two or more mines, which is offering a single plan for the employees at all of its mines.

Admittance to contract hospitals is predicated usually upon certification by the company doctor or the doctor who serves the patient under a prepayment plan for general medical services. However, admittance is not generally granted until a representative of the hospital staff evaluates the patient's need for hospitalization.

Contracts that are administered by hospitals are, in general, vaguely worded. They contain, for example, such terms as "reasonable medical care," and subscribers have an indefinite concept of the services to which they are entitled. Interpretations of the contract are left to hospital authorities; consequently, misunderstandings, complaints, and grievances are reported to be common, and clarifications are left to the owners of the hospital and the hospital committees at the mines.

Most of the contract hospitals, however, specify in their agreements that the services of the hospital staffs are among the benefits to subscribers. In a few instances the participants in a plan are assigned to certain members of the staff so that each subscriber is consequently limited to the services of one staff physician. A few other hospitals, however, not only provide the services of any or all of its staff members without extra charge but also permit the patient to employ, at his own expense, any physician or surgeon of his own choosing, provided the doctor he selects has the approval of the hospital. A few hospitals also will furnish the services of specialists, such as eye-ear-nose-and-throat specialists or radiologists. A number of the hospitals, particularly those in the coal fields in and around southern West Virginia, have "closed" staffs; that is, they do not extend the privilege of hospital practice to doctors other than those on their regular limited staffs.

Virtually all of the contract hospital plans exclude complete obstetrical care of normal cases, but some of the plans provide such services at reduced charges. Reductions may be in the form of attention by staff

physicians without charge (with regular charges for hospital services) or of reduced fees for the doctor's attention (with full charges for room accommodations). One contract specifies that:

The doctor caring for obstetrical cases, \* \* \* in the hospital, be paid thirty-five dollars (\$35) by the patient for each case; further any subscriber who elects to have obstetrical service in the hospital, when hospitalization is not necessary for that particular case, shall be allowed a 25 percent discount on the hospital charges usually made on other patients.

Excerpts from some other contracts, relating to obstetrics, are as follows:

Obstetrical cases will be taken and cared for, for the flat rate of \$45, which will include 5 days in the hospital.

There will be no extra charge for labor cases which are sent in by physicians with a note stating that delivery in the home is considered unsafe; if a patient of this kind comes to the hospital on her own accord or is unable to secure the services of a physician in the home, a charge of \$35 for professional services plus a private room fee of \$2 per day will be made.

The contract hospital plans usually do not permit subscribers to continue as participants after their employment has terminated. Nearly all of them extend the benefits of the plan to the subscriber and his dependents when the subscriber is temporarily unemployed owing to shut-down of the mine, provided that he agrees, upon his return to work, to pay in full the premiums which are in arrears. Characteristic of this feature is a provision in one contract which states that:

In the event of a shut-down by the company due to business problems, lay-offs or to labor problems, the contract shall remain in effect for thirty days, it being understood and obligatory that when operations are resumed, there shall be a retroactive check-off to make up for the pay days lost.

It is not common, however, for contracts to permit a subscriber's benefits to continue when he is absent from his employment owing to illness or disability, unless his absence is for a relatively short period, usually no more than 30 days. Some contracts extend this period. An outstanding example of such a provision is the following, quoted from a hospital contract in effect in Alabama:

It is further understood that if an employee is temporarily absent from his employment on account of his own sickness or as the result of an accident not within the line and scope of his employment, which renders him unable to work, he will be retained on the payroll of the Corporation to the extent of his dues hereunder,

for a period not to exceed 90 days; if he is financially unable to make this regular payment of the dues to the hospital as provided hereunder, the Corporation will charge the same to him to be repaid when he returns to work. If such sickness and disability at the expiration of said 90 days is determined as permanent, he shall not be entitled to further treatment under the terms of this contract. If sickness and disability, however, is diagnosed as temporary, but beyond the period of said 90 days, the employee upon payment of the regular monthly dues to the hospital through the Corporation but not as an overdraw on the payrolls, shall continue to be entitled to hospitalization services as provided in this contract. If the disability of the employee is the result of an accident in the course of his employment by the company, for which he is receiving compensation, such employee shall be entitled to hospitalization for himself and family provided he shall make payment as specified, of the regular monthly dues hereunder, the employee shall continue to be entitled to all rights under this contract during the period in which such compensation shall be paid. If during either of the periods above mentioned the employee shall enter the service of any other employer, his rights under this contract shall cease \* \* \*.

The majority of hospital-administered contracts contain a clause permitting cancellation of the contract by either party upon 30 days' notice. In actual practice, however, contracts usually are continued from year to year, according to the information obtained by the Medical Survey teams. Modifications in the contracts are constantly made, sometimes as a result of the desire of the union or other agency representing the subscribers to increase the number of benefits, and at other times as a result of the hospital's request for increases in subscription rates or in total amounts deducted from wages.

Although the subscription rates specified in the contracts have varied little from term to term and from one mine to another, a few of the contracts, based upon actuarial experience or a cost-accounting system, allow for marked variations in rates. For example, one nonprofit hospital in West Virginia maintained a careful record of the hospitalization experience of each mine with which it had a contract. If the experience with the subscribers on the list from any one mine showed that the total expenses of the hospital exceeded the income from that group over a given period of time, the hospital notified the subscribers' representatives that it desired to negotiate a new contract at higher rates. These higher rates were based on the past experience with the individual groups of subscribers. Ten percent of

each subscription rate was added to the subscribers' costs in order to allow for a reserve with which to meet emergencies and fluctuating operating costs. Thus, this one hospital had a number of contracts with various groups, none of which paid the same subscription rates. At one mine, for example, the charge to participants was \$2.80 a month per subscriber, while at another mine the charge was \$4.80. If experience showed that the income from a particular group was larger than its costs, the hospital notified the contracting party of a decrease in rates.

### *Nonprofit Associations*

In the prosecution of the Survey, 26 hospitalization plans were found in which the funds raised by subscription were administered by nonprofit organizations. Such plans were noted most frequently in Area I, principally in Pennsylvania. Nonprofit organizations are associations incorporated under the laws of the several States in which they operate and are directed by boards of trustees—usually community leaders—who serve without pay. These nonprofit corporations enter into contracts with a large number of hospitals in the State or in the area they serve in order to provide as broad a scope of hospital services as possible. Inasmuch as there is no profit motive in such corporations, the plans offered by these groups generally stress the quality of medical care, the comprehensiveness of hospital services, and a wide choice of institutions, rather than low subscription rates. Nevertheless, the charges to participants in the nonprofit plans found in the Survey were observed to be slightly lower, on the average, than those of other hospitalization plans available at coal mines.

The plans established by nonprofit organizations are not limited to mining groups or to any other industrial groups. Rather, they are offered to all groups or industrial establishments. A plan, however, must originally be subscribed to by at least a majority—often 75 percent—of the employees of any one mine, plant or establishment. As soon as pledges are received from the required numbers of subscribers at each mine, a subscription rate is determined, and arrangements are made with the employer to deduct the premiums from wages and

remit the funds so obtained to the association. Then each subscriber is issued an individual contract form which clearly specifies the benefits and exclusions of the plan. Upon signing the forms, each subscriber becomes a party to the contract with the association, authorizing the association to receive the amounts deducted from his wages.

Subscribers to plans administered by nonprofit associations may select any hospital with which the organization has a contract, which usually comprises a sufficient number to give him a wide latitude of choice. Although the usual contract specifies a "member" hospital, recent legal rulings indicate that, in some States at least, the subscriber may go to any hospital he chooses and be assured that the association will pay the bills for services to which he is entitled under the terms of his contract.

A subscriber or his dependents may gain admittance to the hospital of his choice upon recommendation of his attending physician, provided that his physician is a member of the hospital staff or has the privilege of practicing in that particular hospital. If the attending physician is not a member of the medical staff of a hospital and is not acceptable to the hospital that the subscriber or his dependent has selected, the patient then may obtain another physician so qualified, whom his own physician may care to recommend. Member hospitals are not permitted to choose a physician for the patient.

An analysis of several contracts administered by nonprofit organizations indicates that they are more specific in stating the benefits obtainable by participants than are other plans. Although they enumerate the principal exclusions, they fail to mention a large number of the hospital services that frequently are required by patients.

Services and materials usually included as benefits under the plan are bed (ward or semiprivate, depending upon the subscription rate), board, and nursing service, laboratory, X-ray, and use of operating room; dressings, routine medications, and plaster casts. In about half of the contracts studied, the use of a delivery room was available without extra charge to patients. In a majority of the contracts, patients were required to pay the regular fees for "unusual" medications such as sera, vaccines and blood transfusions, and for X-ray therapy, physio-



*Miner's wife in private room of hospital. Prepayment plans usually provide only for ward room, but in some plans private rooms are obtainable at extra cost.*

therapy, anesthesia, and unusual X-ray examinations.

A characteristic of many of the plans offered by nonprofit associations is evidenced by the benefits relating to maternity cases. About half of the plans studied include complete hospitalization services to wives of subscribers for normal and abnormal obstetrics, namely, bed, board, nursing care, medications, bandages, use of delivery room, and nursery care of the newborn infant. Other plans provide hospital services and medications to the wives of participants at a discount. The obstetrician's fee must be paid by the subscriber. Typical of the provisions relating to obstetrical care are the following quotations from two subscribers' contracts:

Hospital service for the care of obstetrical or maternity cases shall include any condition resulting from pregnancy, complications or accidents of pregnancy, the care of the mother and

the ordinary nursery care of the newborn child during the duration of the hospital stay of the mother; and shall be available only to a married subscriber enrolled under the family subscription agreement provided, however, that

*a.* Hospitalization shall not be available during the first twelve (12) months from the effective date of the family subscription agreement.

*b.* Hospitalization shall be limited to not more than ten (10) days in any one contract year, but this limitation shall not apply to ectopic pregnancies, or caesarian sections.

OBSTETRICS: In case of normal obstetrics, a member will be furnished hospital service, at the rate of fifty percent of the regular hospital charges, provided the subscriber's certificate has been in force for a period of 240 days. In case of abnormal obstetrics a member will be furnished hospital service.

All of the nonprofit plans require a waiting period by subscribers before they become entitled to benefits other than hospitalization for injuries. For illness, this waiting period usually is about 15 days after the

first premium is paid, although since so many of the nonprofit plans grant hospitalization without additional charge, or at reduced rates, for maternity cases, they are more specific with regard to waiting periods than contracts written under other plans. The waiting period for obstetrics ranges from 8 to 12 months, most contracts requiring a subscriber to wait 10 months before he is entitled to this benefit. In other respects, the waiting periods do not differ from those written into other contracts—generally no waiting period for injuries, about 2 weeks for illness, and from 3 to 6 months for a tonsillectomy. The amount of service the hospital will render—that is, the number of admissions a subscriber is entitled to and the length of time he may stay in the hospital—under the nonprofit plans does not differ from that under other plans.

An outstanding characteristic of the plans administered by nonprofit associations is the provision that the participant does not cease to be a subscriber to the plans upon termination of employment, as he is permitted to designate another employer as a remitting agent, or to assume the responsibility of remitting monthly premiums himself. Another provision observed in a few contracts permits the family members, in the case of the death of the subscriber, to receive continued benefits, provided they continue payments for the remainder of the contract year, and they may renew the subscription for the family group.

Although nearly all contracts written by nonprofit associations with individual subscribers are for a 12-month period, they provide that the contracts may be canceled by either party on 30 days' notice, and some of them state that the association may change the subscription rates upon 30 days' notice to subscribers. No grievance procedure is specified or indicated in any of the plans operated by nonprofit associations.

Of the 26 plans financially administered by nonprofit associations, 17 were Blue Cross plans established by hospital service organizations whose activities are coordinated by the Blue Cross Commission of the American Hospital Association. Blue Cross plans are in operation in all of the bituminous-coal-mining States, except Arkansas. Their major enrollment is from towns and cities, but in some States,

especially where the plans have received the support of farmers' organizations, large enrollments have been received from rural areas. According to Blue Cross officials, coal-mine employees have been attracted to the Blue Cross plans predominantly in Pennsylvania, Ohio, and Illinois. Of the 17 Blue Cross plans observed in the Survey, 13 were in Pennsylvania, 2 in Illinois, and 2 in Colorado. The Blue Cross organizations in each State carry on intensive promotional campaigns.

Of the remaining nonprofit plans, one was administered by a medical service organization sponsored by a State medical society and was markedly similar to the Blue Cross. Another was administered by a commission composed of elected representatives from the mining group and other residents of the community which paid hospital bills to the limit of \$100 in any one year and physicians' medical care bills to the limit of \$50 in any year for service rendered in hospitals. Still another plan was administered by a legally established hospital commission composed of elected representatives chosen from employees and officials of local mines, who paid for hospital and medical care of the employees from funds raised by voluntary pay-roll deductions. This commission establishes clinics and contracts for physicians on a salary basis; hospital service is rendered in a State hospital, and payment is made on a fee-for-service basis.

### *Mutual Benefit Associations*

Six plans were administered by mutual benefit associations.

Although there is no unanimity in the plans offered by mutual benefit associations, there are certain similar characteristics in the organizations themselves. First, they are comprised principally of employees, organized through the initiative of local union leadership; second, their officers are elected by the members for specific terms of service; third, they extend their benefits beyond the expiration of employment of the members; fourth, they generally accept membership from other mines and industrial establishments; fifth, they extend benefits beyond medical care and hospitalization to include cash indemnities for such purposes as burial expenses,

injuries, and disabilities resulting from accidents, and support of survivors in case of death; and finally, they attempt to maintain financial flexibility through authority to change the amounts of the dues and to levy assessments on their members.

The mutual benefit associations observed in the Survey appeared to be encountering several handicaps, among which were increasing costs of hospitalization which threatened to decrease financial reserves. Small memberships imposed restrictions and detracted from the financial soundness of the plans.

Some of the associations—less than half of the several observed in the Survey—attempt to provide prepaid medical services as well as hospitalization for their members and dependents. Where there was a contract physician at the mine, the association confined itself to providing hospitalization benefits. Where the association arranged for general medical services, members were permitted a free choice of physicians from a panel of doctors previously established. One mutual benefit association, which has certain features in common with others, may be described as follows:

Membership in the association is dependent upon employment at the mines of the mining corporation. Application for membership, accompanied by a medical examination report, must be approved by the board of directors. Associate membership is extended to dependents of married or single men. These associate members must have been solely dependent upon the member for 6 months before receipt of benefits extended. A registration fee of \$5 is required, and following registration a waiting period of 1 month must pass before the member is eligible for benefits. Monthly dues are established at \$5 per month for married men and \$3 per month for single men. Payment of the dues to the association is accomplished by pay-roll deduction. The arrangements are made by contract between the mining corporation and the association. Within this contract the members authorize the pay-roll deduction. The hospitalization features of this benefit association are established by an agreement between the association and the hospital corporation or corporations that render services. The association pays to the hospital with which it has an agreement, \$3 per day for a maximum of 15 days for hospitalization of its members. The benefit may be extended for a second 15-day period at the discretion of the board of directors. The association will also pay the same per diem to other hospitals in case of emergency illness or injury.

The association provides, in cases of fracture or suspected fracture, coverage of one-half of the X-ray examination fees up to a maximum of \$25. The

association will further assume a maximum liability of \$5 per month for expenses incurred in the use of laboratory services. It, therefore, follows that the maximum hospital coverage afforded for 15 days at \$3 a day, maximum X-ray coverage at \$25, and maximum laboratory coverage at \$5 amounts to a total of \$75 for 15 days hospitalization. This represents, at the present average per diem cost of hospitalization and present fee schedules of X-ray and laboratory services, only a portion of the total cost of hospital care, leaving a balance to be paid by the subscriber.

The association plan includes provisions for medical and surgical care. A fee schedule is established for the services of a panel of 15 physicians. Services rendered by these physicians for members are charged against the association fund at the established fee schedule. This plan excludes services in the treatment of venereal diseases, insanity, pulmonary tuberculosis, maternity cases, contagious diseases, and injuries or illness as a result of alcoholism, and administration of blood transfusions. There are other exclusions in diagnostic services and therapy—vaccines, sera, X-ray therapy, radium therapy, orthopedic appliances, and basal metabolic examinations.

There are a number of administrative controls. The member is hospitalized at the recommendation of his attending doctor. In questions regarding termination of hospitalization, the association assumes no liability for continued hospitalization after his attending physician considers the member to be ready for discharge. It is specifically stated, however, that "the association reserves the right to have its appointed physician inspect and examine the patient and his statement as to the condition of the patient shall govern the question of discharge."

### *Union-Administered Plans*

Among the observed plans, 16 were financially administered by local mine unions or groups of local unions. Such plans were found in all areas but predominantly in the far West. All provide for necessary surgical treatment as well as hospitalization, and some are combination plans that also provide general medical services. Because of the limited hospital facilities in most of the places where these



plans were observed to be in effect, participants virtually had no choice in selecting hospitals. Arrangements by the agencies—union committees—were made with more than one hospital, if two or more were available. In two coal-mining communities, however, the unions had opened and operated community hospitals, and subscribers were entitled to benefits at these hospitals only.

At one mine where the employees participate in a union-administered plan for hospitalization, a separate plan is administered by the local union for pre-paid dental care, to which about 40 percent of the members subscribe at a rate of 35 cents a month; the charge includes dental services to the subscribers and their families, but materials must be paid for additionally.

Union-administered plans are no more specific in their provisions regarding benefits to subscribers than are other plans. Five of the 16 union plans, however, include hospital medical service for normal as well as complicated obstetrics or make provisions for furnishing hospitalization for obstetrical care at reduced rates. Eleven of the plans provide for free X-ray examinations, but none provides for X-ray therapy.

One of the two plans administered in conjunction with a union-owned hospital has been in operation since 1915 and, while not typical of union-administered plans, is noteworthy because of its relatively long experience. This plan is operated as a medical and relief association by 9 local unions, 6 of which are co-owners and 3 of which are associates. Other local unions may join the association, whose main purpose is to provide surgical and hospital treatment for members and their families. The upper limit on membership is 8,000; and enrollment at the time of the Survey was reported to be about 6,000. For a local union to become a co-owner, an initiation fee of \$22.50 per union member is required; and to become an associate an initiation fee of \$2.50 per member is required. Thereafter, subscription rates to members are \$1.25 a month, whether the member is married or single. With the approval of the local unions, officers of the association may reduce monthly dues, or levy assessments. Dues are not paid directly to the association but to the local unions, which in turn transmit the collected funds to the association each month.

Local unions cannot withdraw from the association except with the consent of the other local unions constituting the association. Local unions that have withdrawn and which desire to be reinstated are required to pay an initiation fee of \$2.50 per subscriber, in addition to making up all dues and assessments that would have been paid during the period of withdrawal. Reinstated local unions are not eligible for service until 6 months have elapsed after reinstatement.

Members who have reached old age and who have been in good standing in the union for 2 years previous to retirement and members who have become permanently disabled are exempt from paying dues. Members who are unable to work because of illness continue to receive the benefits of the plan and are excused from paying back dues after their return to work. The association will not pay the bills for treatment of members at places other than its own hospital or by physicians other than members of its own staff.

The 100-bed hospital owned by the association described above was destroyed by fire in February 1946, and during the period of the Survey activities were conducted in temporary quarters accommodating 25 to 30 beds. The hospital staff is headed by a chief surgeon and assistant surgeon, employed by the association on a salary basis.

Procedures have been established by the association for settling grievances and disputes over admission. Such matters are first directed to the hospital manager for adjustment. Should adjustment fail, the grievance is then referred to the board of directors for adjudication. With respect to determination of the need for hospitalization when subscribers disagree with the judgment of the chief surgeon of the hospital, the member may obtain the judgment of two outside physicians who are subject to the approval of the board of directors. In addition, with respect to hospitalization of chronic cases, the attending physician is required to consult with the hospital's surgeon and administrator. These stipulations provide a reasonable judgment as to the necessity of hospitalization and in times of chronic illness provide a reasonable answer as to the availability of accommodations for care.

The following provisions, from the bylaws of the

association, relate to arrangements with members of the medical profession:

The Chief Surgeon shall have full charge of the Hospital and supervise its various departments, subject to the approval of a majority of the Board of Directors.

The Doctors of the Association shall not be allowed to leave the Hospital except by permission of the Board of Managers and shall be under contract with the Board of Directors at all times. Either Doctor that is not able to be reached, according to contract and Bylaws shall pay the actual cost of outside Doctor that attends case.

The Doctors shall use every precaution as to what constitutes an X-ray case and if member demands a picture after the doctors have deemed it unnecessary, the question shall be referred to the management. Members wishing X-ray pictures to take before compensation board shall be given every consideration in getting same.

The Management shall see that no outside doctors perform any operation on any member of this Association unless doctor is preferred by member.

The Assistant Surgeon shall be a certified eye, ear, nose, and throat specialist and shall be a qualified X-ray operator and qualified to appear before Compensation Board as an eye specialist.

The Chief Surgeon's salary shall not be more than Six Hundred (\$600) Dollars a month, with a fifty-fifty split fee on outside cases. Split fee not to be paid until it has been collected from the patient.

The Assistant Surgeon's salary shall not be more than Four Hundred (\$400) Dollars a month with a fifty-fifty split fee on outside cases. Split fee not to be paid until it has been collected from the patient.

Doctor's contracts can be terminated by a majority vote of the affiliated Local Unions, after a Thirty (30) day notice has been posted at the Pit Head.

### *Employer-Administered Plans*

Hospitalization plans directed by mining companies who administer the funds accumulated through deductions from the wages of their employees, were observed at nine mines—three in Pennsylvania, two in Alabama, and one each in Kentucky, Colorado, New Mexico, and Utah.

Four of these mines are captive operations, owned by, or affiliated with, three companies; three of the mines are owned by two large commercial coal companies; and the other two are owned by relatively small producers.

One of the salient characteristics of these company-administered plans is the fact that all but one provide, in addition to hospitalization, surgical treat-

ment without extra cost; and seven of the nine include the services of specialists and X-ray examinations among the subscribers' benefits. Only one of the plans, however, will permit maternity cases to be hospitalized without extra fees; two extend hospitalization as a benefit; and the remainder accept subscribers' wives for maternity care at reduced rates. Obstetricians' services in maternity cases are provided at reduced rates in accordance with the plans at five mines. Dental care is given free at hospitals under these plans for five mines.

Four companies, which operate six of the mines visited, maintain their own hospitals, with salaried physicians and surgeons and with out-patient departments that render general medical care at the hospitals. All of these hospitals are open to the general public; but only one, which is located in an isolated area, will permit persons not employed by the coal mine owners to participate in the hospitalization plans. The monthly rates to subscribers who are entitled to the privileges of these company-owned hospitals range from \$1 to \$2.50, and the average is \$2 for married men with dependents; the same rates apply to single men participating in all but one of these plans, where the charge is \$0.75 a month.

The three companies, one a large producer and the others relatively small operators, which do not own their hospitals, have arranged with local hospitals to care for subscribers. The monthly subscription rate to one plan which includes general medical care as well as hospitalization, is \$4 for single men and \$5.50 for married men with dependents. The rates at the two other mines for hospitalization only, are \$1.25 and \$1.50, single men and married men paying the same amounts. The large mine with the combination plan has only a small number of subscribers (about 20 percent of its employees), inasmuch as the employees, having become dissatisfied with the company plan, set up a separate plan that is administered by a local physician who directs a hospital.

### *Physician-Administered Plans*

Ten of the prepayment plans for hospitalization were observed to be administered by physicians. Nine were in operation at mines in the Appalachian



*Miner having teeth examined in company hospital. Only a very few prepayment plans provide for this service.*

areas; the tenth was in effect in Utah. These do not differ materially from the hospital-administered plans. In general, they are similar in their provisions, the physician acting merely as agent for the subscribers. In nearly all instances the physicians administering these plans own the hospital with which contracts for hospitalization of subscribers has been effectuated or are members of the hospital staffs.

### *Hospital-Operator-Union-Administered Plans*

Only one of all the plans coming within the purview of the Survey teams was found to be adminis-

tered by a commission composed of representatives of a hospital, and of the management and employees of coal companies. This plan was the outgrowth of one originally devised by the hospital to care for indigent patients and persons with low incomes. As now constituted, it is administered by a committee composed of one member selected from among the directors of the hospital, one member selected by the mine operators in the area, and the third member selected by the mine workers. The committee serves without salary.

The amount of \$0.75 per month per subscriber, which is derived by pay-roll deduction, is divided in the following way: \$0.50 is set aside for the hospital, and \$0.25 is turned over to the hospital committee,

which is specifically directed to furnish a monthly statement of disbursements. The plan permits increases in subscription rates should the necessity arise.

The funds which are disbursed by the committee are used for these purposes:

1. An amount not exceeding \$13,000 per year is paid to active staff members of the hospital as a retainer for service. The committee is empowered to increase or decrease the amount of such retainers. The retainers paid to the various staff members are as follows: To the surgical staff members, \$1,200; to the medical staff members, \$1,000; and to special staff members defined as eye, ear, nose, and throat physicians, \$600 per year. These retainers are predicated upon a subscription of 6,000 members and are decreased proportionately if the aggregate of subscribers is reduced.

2. The committee pays for an administrative clerk who is responsible for maintaining records relating to expenditures and determining dependency status or eligibility of patients, and who serves for liaison between the subscription patients and the hospital.

3. The committee purchases the various types of drugs not customarily furnished by the hospital when prescribed by the attending physicians for the treatment of subscription patients. This includes special sera, vaccines, anesthetics, drugs, and special bandages.

4. The committee pays for services rendered in the hospital by dentists at the existing rate for each case treated.

The services rendered by this hospitalization plan include ward bed, board, nursing services, services of specialists, treatment of nonindustrial injuries, X-ray examinations for diagnostic purposes, laboratory service, and medication.

In consideration of the retainers received by the respective members of the staff, medical, surgical, and obstetrical treatment is provided to subscribers and dependents while they are patients in the hospital. The service is extended to hospital-ward and private-room patients alike and to so-called out-patients. Also it includes the services of the physician's associates and assistants without further payment. Service for subscription cases is provided on a rotation basis among the respective members of the active staff, and each patient is privileged to select any other staff doctor of his choice for consultation with the attending physician.

Misunderstandings of patients are settled by an arbitration committee of three persons, representing the hospital board, the staff, and the hospital com-

mittee. This arbitration committee has access to the records of the hospital and to the minutes of the hospital staff meetings, and it may call upon the employee's hospital committee for assistance.

This plan is unique in the experience of this survey because of the relationship existing among employee, employer, and the hospital. Further, it is noteworthy with respect to arbitration procedures.

## *Indemnity Plans*

Fourteen plans, or 7 percent of the plans studied, were essentially indemnity-type group insurance carried with commercial insurance companies. These plans which were primarily in use at mines in the Midwest and in the northern Appalachians, provide cash benefits directly to the subscribers, or to assignees of the subscribers, in case of illness, injury, or other catastrophes. They do not differ from the insurance that individuals can obtain from commercial companies except that the subscribers at the mines pay lower premiums because of mass or group subscription.

These plans usually reimburse the beneficiaries, in part, for minimum expenses of hospitalization, particularly in cases involving surgery. The benefits of this character are usually based upon a per diem rate—for example, a maximum rate of \$21 per week or \$3 per day. There are variations in the extent of scheduled coverage provided. For example, the range in payments toward meeting the surgeons' fees may vary from \$25 to \$75. Fees for operating room, anesthesia, X-ray and laboratory services may likewise be included.

Hospitalization plans of this same type may provide additional cash benefits to the subscriber and to the dependent in cases of sickness or injury. One particular insurance plan furnished funds for hospital care, including nursing services, to the extent of \$21 per week for 4 weeks, plus a coverage to defray surgical expenses and surgeon's fees to the extent of \$15 and fees for operating room and anesthesia to the extent of \$5 each, for a monthly premium of approximately \$1.18. An additional sickness benefit covering total disability due to sickness or disease may, following a waiting period of 7 days, be provided, which furnishes an indemnity of \$30

a month for a maximum of 26 weeks. This is obtainable for a monthly premium of about \$0.71. The indemnity seldom is large enough to provide a complete payment of the necessary services demanded in case of illness. However, insurance plans are available which provide for any feature or all features of hospitalization at varying levels of indemnity to the subscriber, including a complete coverage. Obviously, the greater the indemnity desired, the greater is the monthly premium.

This type of insurance plan, which is characteristically term insurance, depends entirely upon continued employment. All that remains upon termination of employment is the right of the subscriber to convert the term life insurance feature that usually accompanies the hospitalization plan into a straight life insurance.

### *Attitudes Toward Prepaid Hospitalization*

The principle of prepayment for hospitalization, with the costs distributed widely in order to minimize the economic hazards to individuals in case of illness or injury, is generally acceptable in the bituminous-coal-mining industry, according to the views expressed by miners, union officials, operators, and doctors. The tradition of prepayment for general medical services, surgical services, and hospitalization is bolstered by a continuing belief that the system is just, economical, and practicable and that it renders a particularly valuable service to persons with low income. Further, professional and lay persons associated with the industry believe that the prepayment system has made it possible to provide medical services and facilities in many mining districts throughout the country that otherwise might have been deprived of such benefits.

Nevertheless, much criticism has been expressed to the Survey teams with respect to the actual operations of the system in particular places. Predominantly, these are complaints that there are an insufficient number of physicians, an insufficient number of hospitals, and a lack of nursing personnel and that the costs to patients are not closely related to the actual costs of medical care. Such complaints, however, are voiced generally; they are not confined

currently to people in the coal fields and are related directly to the prevailing lack of professional personnel in many sections of the country, particularly in rural areas. The subject of costs, likewise, has been a Nation-wide problem, rather than one pertaining only to the coal-mining industry.

Among the specific criticisms expressed to the Survey teams are the following:

1. *By physicians.* Lack of cooperation between certain physicians practicing in coal-mining communities and the staffs of the hospitals serving the same communities. Some camp physicians have stated that hospitals refuse patients who have been referred to them; some hospitals have stated that camp physicians send patients to them without adequate diagnostic study, placing an unnecessary burden on their staffs.

2. *By hospitals.* Some mining companies are not turning over all of the funds collected by them from employees participating in hospitalization plans administered by the hospitals. Hospitals are financially embarrassed by failure of prepayment plans to provide enough funds to meet increasing costs;



*Miner's daughter with fractured leg being treated in hospital. Dependents of subscribers are entitled to benefits of hospitalization under nearly all plans.*

plans are not sufficiently flexible to permit necessary adjustments in subscribers' rates and increases in charges for special services. Also, too many individuals seek hospital services unnecessarily.

3. *By coal-mining companies that own hospitals.* Pay-roll deductions from miners' wages and other fees do not pay all of the costs of operating the hospitals, and the deficits have to be made up by the companies.

4. *By unions.* Coal companies are using the funds derived from prepayment wage deductions to defray the costs of caring for industrial injuries.

5. *By miners.* Subscribers have serious difficulty in gaining admittance to hospitals. Hospitals give preference to patients who pay on a fee-for-service basis over patients who are subscribers to prepayment hospitalization plans. Subscribers rarely have any choice as to the hospital or the attending surgeon.

## DISCUSSION

A review of the methods employed in the bituminous-coal-mining industry for providing medical care and hospitalization for miners and their dependents reveals that the prepayment principle is widely prevalent and well-established. Two-thirds of the mines surveyed, employing more than three-fourths of the miners, rely on such prepayment plans. Inasmuch as the Survey covered a portion of only those mines that produce more than 50,000 tons of coal annually, it is not known how many of all the 7,000 to 9,000 mines in this country have prepayment plans. Nevertheless, the prepayment system, under which persons pay for part of their medical care in advance by means of deductions from their wages, is not only widespread in that portion of the industry which employs the large majority of the workers but has been utilized so long that its existence is now firmly established.

Prepayment plans for hospitalization are utilized to a slightly greater extent than similar plans for general medical services. However, at a majority of the mines where the prepayment system is in effect, plans for both hospitalization and general medical services are utilized. One of the singular characteristics of the prepayment plans is the fact that they are limited to benefits for employees (and their dependents) of the industry and of single mines. Exceptions occur only with respect to a few hospitalization plans sponsored and financially administered by organizations divorced from the coal industry and open to participation by persons in all vocations.

Classified in terms of the individual, agency, or organization handling and administering the funds accumulated through wage deductions, different types of plans have come within the purview of the Survey, all differing from each other in one or more respects.

These types are those administered by hospitals, principally privately owned hospitals; nonprofit associations, such as the Blue Cross hospital-service organizations and mutual benefit associations; local miners' unions or groups of unions; coal-mining companies; commissions, composed of representatives of unions, employers, and hospitals; and commercial insurance companies.

Although the lack of uniformity in the various hospitalization plans is striking, certain distinctive features are common to all. One common characteristic is their ambiguity, that is, the plans are effectuated by means of contracts the wording of which is so vague that subscribers have no clear understanding of the services and benefits to which they are entitled. Nor, with the exception of some of the nonprofit plans, is any descriptive literature made available to subscribers to acquaint them with the scope and nature of their privileges.

From careful analysis of a representative number of contracts, including samples of each type of plan, it has not been possible to determine whether or not participants in the plans have available to them, without cash payment of full and regular fees, many of the services and materials commonly necessary for treating serious illnesses. In practice, reliance is placed on so-called understandings and common agreements. A number of the contracts contain a phrase that consists of a promise to "render reasonable medical and surgical care" within the hospital, such phrasing nearly always accompanied by a list specifying a few services available to participants and another list of exclusions that is incomplete and confusing to the participant.

It is reasonable to expect that hospitalization plans

in use in the industry should be specific in defining the benefits available to subscribers. Bed, board, and ordinary nursing care represent the common denominator of services in all contracts; but subscribers should be fully advised as to whether they are entitled to other services and privileges, such as X-ray examinations, laboratory examinations, medications and dressings, biologicals, anesthesia, X-ray and radium therapy, and use of operating rooms and delivery rooms, which ordinarily are not mentioned. If any of these are not included as full benefits, the contracts should state clearly whether or not subscribers may have them at reduced fees, and exactly to what extent the charges would be lowered. Frequently specified as exclusions in the plans are treatment and hospitalization for contagious diseases, venereal diseases, normal obstetrics, alcoholism, mental disease, and tuberculosis; but cases of chronic disease, which in practice are usually excluded, are not mentioned, and no provisions are set up for diagnosing or treating acute attacks of "chronic," degenerative, and incurable diseases, except on a fee-for-service basis.

The lack of uniformity in the several plans apparently results from numerous factors:

Plans were established in some places without reference to those in other places. Thus, each plan was developed to meet the anticipated needs of a particular group, and no attempt was made to devise a plan based on the needs common to all miners or large aggregations of miners.

Plans were adapted to fit the limited hospital facilities in single communities or single hospitals, without provisions for extending the services by arrangements with larger, better-equipped medical institutions in other communities.

Competition among hospitals for contracts resulted in an expansion, in many places, of the amount of benefits, or, conversely, in limitations of services to meet lower subscription rates. Thus, two hospitals in one community may be found administering from two to a dozen or more plans, one for each mine in the vicinity, each plan differing from the others because of the variety of subscription rates and number of subscribers at each mine.

Interruptions in employment and fluctuations in the miner's income have had an unfavorable influence on financing many hospitalization plans; thus, each plan has been adjusted and modified to meet local situations with a pessimistic approach. As far as the Survey has been able to determine, no attempt has been made by the industry to establish an actuarial basis for sound plans, either in large segments of the industry or as a whole.

Hospitalization plans for employees of large mines, including captive operations, are usually more comprehensive in terms of the medical services provided. Where the size of the operating company or the owning company warrants, the development of hospitals to insure, primarily, adequate provisions for the care of industrial injuries tends to favor the fostering of hospitalization plans for nonindustrial injuries and illnesses of employees and to help defray some of the costs of operating the hospitals.

Attitudes of the operators affect the character of the hospitalization plans. In some places such plans are sponsored, encouraged, and fostered by employers as a means of promoting better relationships with employees. Other employers have stated that participation in hospitalization plans is solely a responsibility of each employee and therefore make no efforts to promote or hinder the establishment of such plans at their mines.

On the basis of the operation of 197 plans studied, certain features of the prepayment system have been noted that appear to be desirable:

The prepayment plans are an effective means of providing some hospitalization for miners and their dependents, many of whom otherwise could not meet the sudden financial obligations of serious illness or injury. Under an adequate system, subscribers are assured service at all times, not just when they can afford it.

The prepayment plans have been responsible for the initial establishment of hospitals in a number of isolated regions and help to support and maintain these and other hospitals. Through prepayment plans, hospitals, being assured a steady income, are enabled to do long-range budgeting, planning, and expansion of facilities and staffs.

The establishment of hospitals has raised the medical standards in many coal-mining areas. For example, the hospitals have made available laboratory, X-ray, and other diagnostic facilities; they have attracted some medical specialists to coal-mining areas; they have created some opportunities for a number of physicians to utilize and develop their skills to a greater extent; and they have afforded limited opportunities for the education of miners' families in matters of health.

The prepayment plans have brought about a closer rapport between the mining people and the medical profession. The amount of neglect of incipient illness owing to hesitation to enter hospitals on a "pay-as-you-go" basis has been decreased.

On the other hand, the prepayment system as conducted in the industry has resulted in certain undesirable features:

The existing prepayment system has given the miners a false sense of security. The best hospitalization plans observed, combined with the best plans observed for general medical care, do not provide all-inclusive medical service, nor do the aggregate charges for these plans represent the total cost of medical care to the subscribers. All plans contain as many limitations that provision for all major illness is not possible. Unfortunately,

large numbers of miners do not clearly understand these limitations.

Under the terms of most of the plans, the participants have no choice of hospitals, and have only an arbitrary, severely limited choice of physicians.

Hospital managements and medical practitioners solicit contracts, and such solicitation has been reported to be prosecuted in instances on the basis of friendships, consonance of social viewpoints, or financial interest in mining ventures, rather than on the capacity to offer the best medical services. In contrast, some small hospitals and clinics frankly admit seeking contracts earnestly but profess they do so with a view to providing a large enough financial base to permit the purchase of additional equipment, increase their professional staffs, and otherwise improve the amount and quality of service.

Competition for contracts based solely on underbidding rather than improved service and expanded benefits is unwholesome.

Inherent within the system are opportunities for stifling competition and for establishing or entrenching monopolistic control of hospital service and of hospital and medical practice. The commanding position attained by a single hospital (such as the proprietary hospital with a closed staff) or by a few physicians through the handling of all or nearly all of the contract practice in a given area, minimizes the professional opportunities of others to enter the area on a free competitive basis with any assurance of reasonable income. Thus the objectives of progressive medicine are defeated.

The lack of competitive pressure in certain coal-mining communities permits substandard service to be supplied and dulls the incentives for improving medical service. That good-quality medical service is available in many such places is a tribute to the integrity of numerous individuals in the medical profession.

Many of the prepaid hospitalization plans, as executed in the coal industry, contain certain minimum benefits, which are more evident in some types than in others. A notable attribute of the majority of the prepayment plans is the provision for the limited services of a surgeon and medical staff as a part of the benefits. Inasmuch as the fees for surgical services in cases of serious illness or injury constitute a substantial portion of the total cost of medical care, the inclusion of such a provision in the hospitalization plans is, of course, desirable. Similarly desirable are provisions for the care of abnormal obstetrical cases requiring surgical intervention without extra charge; also provisions relating to the surgical care of complications of contagious disease are equally meritorious. Another benefit is the availability—day and night—of medical service; also, subscribers have the opportunity of availing

themselves of the consultant services and diagnostic methods of a hospital.

Difficult to reconcile with concepts of progressive medicine is the exclusion of normal maternity cases from the benefits of many of the plans. Nor does it appear reasonable that treatment of the so-called "misconduct diseases" should be excluded. Decisions based on morals rather than the well-being of individuals and the health standards of the public seem archaic. Yet virtually no plans undertake to treat, without extra charges, cases of venereal disease, alcoholism, injuries resulting from alcoholism—or, as some contracts put it, "injuries resulting from brawls"—or attempted suicide.

Considering the potentialities of contagious disease in the coal-mining districts, particularly those where the privy, the garbage dump, and the polluted stream are notable landmarks, the omission of provisions for hospitalization of contagious disease is patently an error.

Although the average costs for participation in hospitalization benefits is lower for some types of plans than for others, there is so much variation in costs within the types of plans, and there are such wide differences in the benefits and exclusions in the several types of plans, that cost comparisons become meaningless. For example, the plans administered by employers in company-owned hospitals have the lowest average rate, yet the services of a surgeon and medical staff for the employees of at least four of the mines are not included within the benefits of this type of plan; extra fees for surgical services have to be paid, and in one instance even fees for hospital room and board, albeit at reduced rates. On the other hand, where the rates are higher, as in the hospital-administered plans, some surgical services are included, but normal obstetrics and many other cases are handled only at extra cost. Also, there appears to be a geographical factor, for there are indications that the rates on the service plans are highest in the West. An extensive study of the total costs of medical care for miners and their dependents, and comparison studies of the costs of the plans in operation, are strongly indicated. Such studies are essential prerequisites to the establishment of any comprehensive program of medical care in the coal fields.



Despite the many variations that can be found in a single type of plan, certain major differences between one type of plan and another are tantamount to advantages or disadvantages to the participants.

In summary, the plans administered by hospitals (namely those wherein a hospital receives the entire check-off and controls execution of the plan through a written contract) include certain services essential to a broad prepayment system for the mining population. Surgical and medical treatment, as well as hospitalization, are provided as subscribers' benefits to participants in all but a small percentage of these plans. Such plans are most common in Area II. These plans, however, are replete with exclusions and are, in general, administered by small hospitals, most of them proprietary, with limited facilities and staffs. Subscribers have virtually no choice in selecting hospitals or physicians.

Plans that are financially administered by physicians have the same virtues and faults, for they are essentially hospital-administered, with the physician acting as agent or intermediary.

Plans administered by companies and by local unions do not differ materially from each other. In these plans, arrangements are usually made with a local hospital, and their operation is similar to the hospital-administered type of plan, except that greater cause for disputes and grievances is latent in them. Company-administered plans are suspected by numbers of miners of being utilized to gain unfair advantages, such as preferences by the hospital with respect to the treatment of industrial accidents, one-sided testimony in compensation cases, and special rates. On the other hand, unions are at times believed to seek similar alleged advantages. Both types of plans contain elements of compulsion; participation in the plans is, or is believed by the participants to be, a condition of employment or of union membership in certain coal-mining districts. Such phrases as "automatically becomes a member of this (medical and hospital) association upon the day of employment," are found in company plans; while "must be a member (of the union) in good standing" occurs in some union plans. Objectionable as the element of compulsion may be, some degree of it may be necessary to assure a sufficient number of

subscribers within a plan that will afford maximum service coupled with sound financing.

Some large coal-producing companies, especially captive operations, and a few local unions operate their own hospitals, some of which extend their services to the entire community in which they are located rather than limiting themselves only to mine employees and their dependents. Because of the broad economic base on which the company-owned hospitals function, they are generally very well equipped and staffed. In addition to the funds obtained from large membership in the hospitalization plans, drawn from the employee enrollment at not one but several mines, as well as from other establishments such as coke plants and steel mills, money to run the hospitals is forthcoming from Management to handle industrial injuries, conduct preemployment examinations, and perform other industrial services. In nearly all instances, Management has stated that the hospital has operated at a deficit, which it has been obliged to underwrite. It is probable, however, that such deficits have been incurred by the expense of treating industrial injuries rather than by insufficiency of funds accumulated through wage deductions to meet the cost of treating beneficiaries of the hospitalization plans. Under the supervision of a medical director, the company hospital in some instances serves as a nucleus of a system of dispensaries staffed by practitioners. There the liaison that exists between the practitioners at the company mines and the hospital staff encourages professional incentive, provides opportunity for frequent medical consultations, and thus serves the best interests of the patients.

However, plans administered in company-owned hospitals are less generous, in terms of benefits, than other types of plans. Many of the services are rendered at reduced rates rather than without cost. Company-owned hospitals are understandably inclined to provide a greater degree of medical service to their employees than to the workers' dependents. Some plans, which include comprehensive benefits to employees, charged extra fees to dependents for the same services, although such fees are lower than those charged the general public. Another undesirable feature of company-administered plans is that participation depends entirely upon continued em-

ployment with a particular company. When an employee quits or is dismissed, he and his dependents automatically cease to participate.

The union-owned hospitals observed provide a more general contract, with fewer exclusions than were observed in other plans. Emphasis is placed equally on surgical and medical treatment, with provision for obstetrical care. Liberal provisions are made for those who, because of temporary illness, permanent disability, or old age, cannot continue subscription payments. If such persons are members in good standing of a local union and have previously participated in the hospitalization plan, continued service is rendered without payment. Furthermore, services are continued to members even after they are unemployed owing to labor disputes, closing down of mines, or discharge by their employers.

The rapid turn-over in the professional staff at one union hospital lends support to allegations of attempts by union officials to dominate or influence the doctors. Physicians are obtained on a 1-year contract, which may be terminated by majority vote of participating unions upon 30 days notice. Such termination clauses, coupled with the fact that physicians and surgeons are subject to the jurisdiction of a board of directors made up entirely of union representatives, seems to make it difficult to attract and hold top-quality personnel.

It would be desirable if union groups owning and administering hospitals adopt the principles of hospital administration advanced by the American Hospital Association and establish governing boards for their hospitals. Such boards would be responsible for formulating policies and appointing medical staffs according to standards described by the American College of Surgeons. In this way, adequate hospital staffs could be maintained by voluntary participation of local physicians. The assistance of a medical advisory board developed from among the staff members would be of great assistance in developing improved facilities and service.

Although support of the union hospitals is derived from the membership of the several local unions in the vicinity rather than the employees of one mine only, the economic base on which they operate

appears to be narrow, and the hospitals depend partly upon fees from the general public.

Some financial flexibility is afforded in the maintenance of the hospitals by provisions for assessing participants in the plan to meet emergencies or increased operating costs. Such assessments are levied only by a majority vote of the local unions having membership in the hospital association.

The construction of a hospital and its facilities are likewise very expensive. Estimated averages vary between \$4,500 and \$7,000 per bed. There are great and varied demands in the maintenance involving considerable expense.

It is rather evident, therefore, that a union or any other group attempting to construct or maintain a hospital through its own efforts must, of necessity, be large. Very few single units of mining population are large enough to construct, maintain, and operate a modern hospital with any degree of adequacy. Because the mining population is, with notable exceptions, usually associated with communities that contain other occupational and social groups, it would be preferable that the mining population co-operate with other groups in erecting hospitals where necessary. As the observations of this Survey indicate that small hospitals provide highly inadequate services, it is considered important that the miners' unions alone do not attempt to construct such hospitals in areas where larger hospitals are needed.

It is, however, recognized that in the vicinity of coal mines, predominantly in Area II, the Southern Appalachian area; in some of the isolated sections of Area V, the Rocky Mountain and far Western area, and in certain sections of Arkansas and Oklahoma, the existing hospital facilities are inadequate, not only for the mining population but also for others in the regions. The Federal Hospital Survey and Construction Act enables the States, with Federal assistance, to enlarge existing nonprofit and public hospitals and to create new hospitals in areas where the need for such facilities is indicated. It therefore appears to be desirable that the United Mine Workers, as an organized body, encourage support of the local public in the Hospital Survey and Construction Act. Individually, or as a body, miners can assist in the formation, in cooperation with other community groups, of nonprofit organizations

for the purpose of building hospitals. Through such coordination of community efforts, better hospital facilities may be provided.

Although only one plan was observed that is administered by a combination of union, operator, and hospital, the plan deserves mention because of its apparent success in fostering cooperative endeavor. In spite of the fact that the present plan is vulnerable in the face of inflation and rising costs at the present rate of support, nevertheless, this plan has sufficient inherent financial flexibility to permit the defect to be corrected. The procedures for settling misunderstandings are reasonable and fair. The established liaison among patient, hospital, and the administrative committee avoids or reduces misunderstandings and provides a more satisfactory administration.

Hospitalization plans administered by nonprofit associations offer by far the greatest number of advantages among the prepayment plans studied. Of primary advantage to the subscribers is the freedom of choice of hospital extended by plans of this type. Increasing numbers of hospitals have indicated, by participation in these plans, a willingness to cooperate with the development of the system. The number of hospitals in many areas that have accepted the nonprofit hospitalization plans assures the participant of a wide choice of hospitals and allows the selection to be made on the basis of proximity, type of medical service desired, character of facilities, and the caliber of the attending staff.

Not only is the choice of hospital extended to the participant, but also a freedom of choice of attending physician is provided. This choice may be limited by the fact that the physician selected by the patient is not acceptable to the hospital or is not a member of the hospital staff, but this limitation does not deny the individual all rights to exercise his choice of physician. By consulting with the attending general practitioner or family doctor, the participant may be assisted in selecting a physician from among a group of consultants who are members of hospital staffs and with whom the family doctor maintains a professional relationship.

The plans administered by voluntary, nonprofit associations, such as the hospital associations in various States that administer the Blue Cross plans, have certain optional features. By paying a slightly

higher premium, subscribers may select private or semiprivate rooms rather than ward services. Another optional service, at added cost, is hospitalization for obstetrical cases. Provisions for paying fees for the services of physicians may also be incorporated into the plan.

Of all the contracts written under the several types of plans, those executed by the nonprofit associations are the least ambiguous, although far from specific. Participants, in general, have a clearer understanding of these contracts than they do of others, for each subscriber executes an individual contract with the association and, in addition, is provided with descriptive literature written in nontechnical language. The rates on these plans are among the lowest, but the total cost of hospitalization is not necessarily lower because of limitations in the amount of services rendered. Because most of these plans, particularly the Blue Cross, are available to all occupational and social groups, there are large enrollments, thus facilitating the spread of risk and enabling the plans to operate on a lower premium-rate basis.

Another desirable feature of these plans is the fact that subscribers need not terminate their subscription with termination of their current employment or with retirement from employment. If a subscriber dies, his survivors may continue the contract in force by paying the same premiums and may later negotiate a new contract.

Although no profit is made by the associations in administering these plans, a proportion of the funds accumulated by premium payments is used for administrative and promotional purposes. The individual subscriber has no means whereby to set a limitation on such expenditures and has no recourse should he believe that such expenditures are excessive; nor has he a voice in other matters of policy.

Among the defects of the nonprofit plans, from the standpoint of low-income groups, is the failure of the ordinary contracts to provide physicians' services as a benefit.

The nonprofit plans provide for limitations on the number of days in which a subscriber or his dependents may be hospitalized without extra charge, or the number of admissions in a contract year; but these limitations are neither more liberal nor more

restrictive than those found in other types of contracts.

Among the nonprofit associations that administer hospitalization plans are the mutual benefit associations, usually sponsored by local unions, sometimes jointly with employers. Such plans generally include provisions for physicians' services, in addition to hospital care. The deficiencies in these plans include the narrow financial base on which they rest, as their membership ordinarily is limited to the employees of a single mine or group of mines. Because these plans usually include general medical services and cash indemnities, such as burial funds, the associations have difficulty in determining proper subscription rates. However, in anticipation of contingencies, the plans make it possible to levy assessments on the subscribers.

Inasmuch as the hospitalization plans administered by commercial insurance companies are operated on a basis of providing cash indemnities rather than services, they are not particularly applicable to people in the coal-mining industry. Indemnity payments seldom provide the same degrees of medical care for low-income groups that are available through participation in some of the other plans.

Medical security is a matter of paramount importance in the coal-mining industry. Frequent periods of unemployment make it essential that provisions be made in all plans to extend credit to subscribers when they are not gainfully employed and to permit participants to receive benefits after employment is terminated. Participation in the prepayment system in some coal fields is voluntary and in others is compulsory. Again, there may be influences that cause the miner to believe that compulsion exists, either as a condition of employment or as a condition of union membership.

It may be that participation to an extent of 60 percent or even more of the people in a group such as the employees of a coal mine is necessary to afford the maximum protection coupled with sound financing. The right of acceptance or rejection might be retained by the group, acting as a unit on the result of a two-thirds or larger vote of the total enrollment. On the other hand, in the absence of such provisions to assure at least the minimum membership necessary, it might be essential for the

administrative agency of any widespread prepayment plan to undertake intensive and extensive promotional activities to enlist large numbers of people in the coal-mining industry in a comprehensive medical care program. In any event, the freedom to exercise decision should serve to provide prepayment plans that will be acceptable to groups of people upon the basis of the quantity and the quality of the services which are provided, and on other merit.

The widespread acceptance of the prepayment principle by miners indicates an understanding and appreciation of the group insurance principle which enables such plans to be established and to function successfully. Leaders in the medical profession have indicated that prepaid medicine deserves a place in this country for it has been recognized as a method of distributing the heavy load of the cost of hospital care. Its development has been slow, but recently a noticeable surge forward has been apparent. As the movement gains impetus, increased thought is directed to efforts for improvement. This process of evolution must be unbiased and soberly reasoned, as it is impossible to visualize unpredictable difficulties that may arise as the development of prepaid hospitalization plans unfold. That which today appears to be quite satisfactory may fail, partly or completely, to achieve its aim tomorrow. Fundamentally, the approach must be sound financially in order that the investments of participants—hospitals, physicians, and subscribers alike—may not be lost. This, of necessity, implies not only actuarial study of illness experience but also, in view of the future, well-developed studies of potential morbidity and experience. Failure to provide adequately for the operation of a hospital results in financial embarrassment both for the hospital and the patient, or a lowering of standards of hospital service. Recent experience has indicated that a sound financial relationship between hospitals and the prepayment system is imperative. The rising cost of hospital service in some instances has not been met by prepayment systems, with the result that hospitals have suffered deficits of moderate to serious degree. Such deficits, if long continued, presumably might result either in a lowered standard of hospital care or elimination of the prepayment system.

It is accepted that there is a limit to the services that prepaid hospitalization may extend. Care is essential that plans devised do not attempt to render more service than they are financially capable of assuming. At present, the usual coverage includes catastrophic illness and in some cases the diagnosis of chronic or incurable disease. Owing to the continuous increase in the proportion of people of advanced age in the Nation, there is an ever-growing need for hospitalization of cases of the degenerative diseases characteristic of old age. With greater experience, it may be possible to include within the prepayment system provisions for care of chronic and incurable disease.

As indicated throughout this Survey, prepayment plans for general medical care and hospitalization are usually contracted for separately. However, no clear line of demarcation can be drawn between the necessity for the services of the general practitioner or the need for hospital care. As the existing systems of prepayment for medical and hospital care supplement each other, the services provided by individual plans should be combined as complementary, or joint plans should provide a comprehensive coverage. An adequate prepayment system in the coal industry should provide for comprehensive care, including provisions for transporting patients to hospitals in those places where hospitals are not readily available.

Commonly observed as a deficiency in the coal-mining areas is the lack of provision for adequate dental care. This deficiency should be overcome by including dental-service features within combined plans for comprehensive medical and hospital services, or under supplemental plans.

The exclusion of service rendered in normal maternity cases is also common in prepayment plans both for general medical care and for hospitalization. A reduction in rates for hospitalization of normal obstetrical cases provides no more than a minimum benefit, because obstetrician's fees are superimposed on the subscriber's costs. These exclusions, particularly in some areas, are detrimental to good obstetrical practice, because the barrier imposed by costs of hospitalization and physicians' services encourages home deliveries among some mining groups in Area II (roughly estimated at about 60 percent). By inference, also, these exclusions may account for

the high infant-mortality rates observed in the Southern Appalachian area. Home deliveries may be accomplished successfully, as has been demonstrated by clinic experience in large cities; nevertheless, the situations are not comparable. The extensive prenatal care, postnatal care, and infant feeding and care programs observed in large cities are not found in the rural mining areas. Physicians engaged for a long time in administering prepayment plans frankly admit that attention to obstetrical services in certain coal areas has lagged. Not only should obstetrical services be included with prepayment plans, but there is also a need for prenatal, postnatal, and well-baby services. The inclusion of services that would provide such a program within the prepayment plans might result in economic problems and higher costs, but the costs may be negligible, considering the widespread benefits. Such a step would provide a reasonable approach to progressive obstetrical practice and preventive pediatric medicine which certainly merits considerable stimulation in coal-mining areas.

Other features indicated for possible inclusion in prepayment plans are out-patient clinical service, extra-territorial emergency hospitalization service, and additional programs that will advance preventive medicine and health education.

One of the most effective facilities for teaching health is the out-patient clinic. The relationship of cause to effect can be demonstrated to patients and their families. By impressing upon patients the value of prevention, progress can be made in reducing illness. Health education helps to prevent the filling of hospital beds. The inclusion of provisions for health education may be a radical departure within prepayment systems, but the value of health education in coal mining areas must not be underestimated, and adoption of such provisions should be considered.

As indicated in the discussion of general medical services, any prepayment system should be broad enough in its population scope to provide a well-distributed risk. Limited groups may contain a backlog of poor risk subjects whose demands upon the system will, in time, render the plan unsound. Development of the prepayment system in a State, county, or coal-mining district of sufficient population density should insure an adequately broad dis-

tribution of risk, particularly in areas where the mining population is concentrated and comprises a majority of the residents. The eventual inclusion of other occupational groups (farmers, lumbermen, factory workers) and social groups should also be studied.

Not only should the plan include broad population groups but also arrange to provide enough adequately staffed and equipped hospitals of sufficient bed capacity to meet the demands of the subscribing group and to provide a widely diversified choice of hospitals and well-rounded complement of specialist service. The present system of controlled hospital service should be studiously avoided.

In extending or establishing prepayment systems for comprehensive medical care, provision should be made to permit all legally qualified physicians who participate in the group-insurance plans to enhance, on behalf of their patients, their medical education and professional skills. Access to many hospitals—those with closed staffs—is denied too many contract physicians practicing today in the coal fields, particularly in Area II. They have no opportunity, or, at best, limited opportunity, to utilize clinical laboratories and other diagnostic facilities of the sort usually available only in hospitals. If the predominance of closed-staff institutions is so great in any coal-mining region as to deny such opportunities to qualified physicians who are participating in the prepayment system, the system should provide for establishing diagnostic clinics where the membership and funds can support them.

No matter what type of contract is devised and no matter how well supplementary literature may explain the terms of prepayment plans, participants will continue to misunderstand them, and interpretations will be necessary. Misunderstandings, complaints, and disputes are part of any system. It is, therefore, indicated that in any prepayment system mechanisms should be established for adjudicating disagreements. Many of the problems may be handled successfully by lay committees and administrators of the prepayment system. However, in medical problems it appears that the subscriber may not be adequately represented or informed by a lay committee and that the assistance of impartial physicians is desirable. It is helpful, therefore, that

within the administration of a prepayment system, a board or committee of impartial physicians be established to adjudicate and clarify misinterpretations or contentions that pertain to problems of medical care or medical practice.

On the basis of the information and data obtained from observing contract practice and other forms of medical practice in the bituminous-coal fields; analyses of hospitalization plans; and the observation of 153 hospitals serving a substantial portion of the people in many coal-mining counties of the 22 major coal-producing States, certain changes in the prevailing systems of providing medical care and hospital services are indicated. Such changes appear to be imperative if a good quality of medical care is to be assured a considerable portion of the American public. It is realized, of course, that prepaid medical care is a highly controversial subject. Many methods have been established and proposed for medical care on a prepayment basis. Each has its merits and faults.

The findings of the Survey indicate that the prepayment system is eminently adaptable to the bituminous-coal-mining industry. It should be borne in mind, however, that no plan can be flexible enough to accommodate all of the people in the industry, regardless of location. Consequently, some adaptation in the administration of a broad plan may be necessary to meet special local needs. Nevertheless, for guidance in establishing a broad system to provide comprehensive medical and hospital care for miners and their dependents, the following fundamentals, believed to be sound and best suited to the current needs, should be carefully considered:

1. The comprehensive plans for medical and hospital service should be administered by nonprofit associations on a sound actuarial basis, in accordance with insurance accounting principles and in conformity with the several States' insurance laws. Charges to participants—that is, subscription costs or check-off amounts—should be carefully determined accordingly.

2. Each plan administered by a nonprofit association should be extended to cover as wide an area as is practicable and feasible, preferably at State level (or even interstate level where the several States' laws will permit), unless there are enough general

medical practitioners and specialists within a smaller area, such as a coal district involving several counties or a single county. As there are few coal districts or counties in the coal-mining areas that can meet this qualification (in view of the observed limited number of specialists), administration at broader levels would be advisable generally.

3. Each subscriber should know exactly what he is paying for and to what he is entitled. Clearly written, individual contracts, describing benefits, exclusions, waiting periods, and deductible provisions, should be executed. Additional descriptive literature should be distributed, and participants should receive periodic reports of the operation of the system, together with interpretations of questions that have arisen.

4. The opportunities for participation should not be limited to a single occupational group.

5. Participation by employers, company officials, and supervisory personnel, on their own behalf, should be permitted. Consideration also should be given to permitting employers to utilize, on a fee-for-service basis, the facilities and medical personnel of the prepayment systems on behalf of their employees, for the treatment of industrial accidents and occupational illnesses. A strict cost accounting should be maintained to assure that funds accumulated through the deductions from the wages of employees shall not be used to defray employers' obligations.

6. Each plan should make actuarially sound provisions for continuing benefits during periods of cessation of the income of participants owing to lock-outs, closing down of mines for various reasons, or strikes or other work stoppages.

7. Provision should be made for permitting subscribers to continue participation following termination or transfer of their employment. Dependent survivors of deceased subscribers should be permitted to continue participation in the plans with continued payment of premiums.

8. Freedom of choice should be offered to subscribers from among an adequate number of hospitals and licensed physicians who are willing to participate in the plans.

9. The funds accumulated through subscription payments should be large enough to assure an

adequate panel of participating physicians, including representation of each of the several essential medical specialties, so that specialists' advice and care may be available whenever indicated.

10. The plan should allow the maximum professional competition compatible with high quality and reasonable economy. The competition must be based upon the ability to serve a greater number of participants with a better quality of medical care.

11. Physicians should be paid from a centrally administered fund at levels, as specified in paragraph 2, on the basis of fixed fees or salaries established by agreement between participating physicians and the administrative agency. Where payment to physicians is made on the basis of fees, it is reasonable to expect that such fees might be somewhat lower than those established in the area, in view of their guaranteed payment by the fund. Where physicians are paid a salary, there should be provided to the physicians:

- (a) Adequate facilities (dispensary or doctor's office, and medical equipment and supplies).
- (b) Medical supervision.
- (c) Opportunities for financial and professional advancement with continued service.

For physicians who are willing to practice in such isolated areas of low population concentration that they cannot be supported otherwise, provision might be made for a subsidy, or guarantee of minimum salary or payment by capitation, and in such instances there should be provision for adequate facilities, medical supervision, and opportunity to the physician for advancement.

Hospitals likewise should be paid from a centrally administered fund on a basis of fees for services, established by agreement between participating hospitals and the administrative agency. Provision should be included in the plans to permit increases or decreases in payment of hospital charges in accordance with rising and falling costs.

12. Wherever indicated by absence or inadequacy of existing facilities and where the membership and funds permit, diagnostic clinics should be established and staffed by the system.

13. Endorsement of the medical profession should be sought. The medical profession should establish checks upon its members who participate in such

prepayment plans, in order that those few physicians who would abuse such a plan may be disciplined. An example of such abuse is that of the physician on a fee-for-service basis who prolongs treatment unnecessarily in order to submit extra bills to the fund. Periodic inspections should be made of standards of care and hospitals participating in the system by medical members of the administrative agencies, or by impartial groups of medical and hospital consultants selected for this purpose. The administrative agency should be enabled, at its discretion, to make findings public.

14. Checks should also be included within the plan to prevent unnecessary demands upon the plans by malingering patients. A chronic complaint of the physicians participating in the capitation plans noted during the Survey was the prevalence of unnecessary demands for medical service. Various types of checks are possible. One of these, which appears to be best-suited, is to have a small or moderate portion of the first cost of each illness paid directly by the subscriber. However, if such a method is adopted, the initial fees should not be so high as to discourage participants from seeking early treatment and thus interfere with the modern practice of preventive medicine.

15. Administration of the prepayment system must not result in domination or coercion of physicians (that is, with reference to decisions in compensation cases, or any other medical practice).

16. The maintenance of the traditional ethical and confidential professional relationship between physicians and patients is essential.

17. The responsibility for maintaining standards of medical care and supervision of medical services to the individual patient should be retained by the medical profession.

18. Provision should be made for adjudicating grievances that may arise from administration of the plan. A grievance board, composed of medical and hospital representatives and of lay members, should be established within the administrative agency for referral of those grievances which cannot be adequately handled as simple administrative problems. The medical and hospital representatives of the grievance board should be acceptable to the administrative agency and the physicians and

hospitals participating in the prepayment system.

Medicine, as an ever-changing science and as an art based on certain fundamental principles of human relationship, has progressed unevenly over the centuries to the benefit of mankind. The physician who is loyal to the concepts of Hippocrates adopts radical changes in medical practices and scientific procedures with caution, but also with a willingness to find those media that will best benefit his patients. There are, at present, clamorings for serious modifications of heretofore accepted medical practices. This Survey has not concerned itself with issues pertaining to medical and hospital practices in general but has confined itself to conditions in the bituminous-coal industry. It has attempted to project suggestions for improvement, as indicated, only within that industry.

The present practices of medicine in the coal fields on a contract basis cannot be supported. They are synonymous with many abuses. They are undesirable and, in numbers of instances, deplorable. In trying to find what would seem to the Medical Survey Group the better methods of medical practice, there has been an awareness that there might be several plans or programs which, with modifications, could be applied beneficially to the industry. However, the investigators of the Survey group believe that a prepayment system, with plans financed by wage deductions and predicated on a freedom of choice of physicians and hospitals by the beneficiaries, would be best. Although payment of physicians is recommended on both a fee-for-service basis and a salary basis, where necessary, the former method is emphasized because, under present custom, it offers by far the greater assurance of a freedom of choice of doctors by the patients.

With the passage of time, new concepts of medical practice may, and probably will, come into being; but for the laborers and their families in the bituminous-coal industry, as observed personally by the professional and technical people in this Survey, the plan suggested is believed to be a timely and practical one. It certainly is a step forward in the evolution of better medical care for a segment of the American people, as represented by the coal-mining industry.



## Hospital Facilities



To evaluate the character, quantity, and quality of the medical care received by miners and their dependents constitutes an extremely difficult and time-consuming interpretative task. This task necessarily involves a thorough evaluation of the treatment of a variety of cases within the numerous hospitals associated with the mining industry. Such an approach was impractical in a study of this

character. All that could be done was to attempt to arrive at indexes to the character of medical care afforded miners and their dependents, both for cases of injury and illness connected with their occupations and for those of nonindustrial origin.

Consequently, an alternate approach has been followed, based upon a consideration of the types of services rendered by the hospitals observed, in terms

of facilities, especially those related to surgery and obstetrics, including X-ray and laboratory services.

The facilities of a hospital are the means by which the physician applies his art and skill. For example, in the diagnosis and treatment of bacterial disease, the physician must use the services of the bacteriological laboratory. If such a facility is not made available to the physician practicing within the hospital, the medical care afforded the patient suffering from bacterial disease may easily be substandard. Examples of this character may be repeated many times, founded on well-accepted medical facts. Based upon the needs of medical practice and experience, there have been established those facilities that are essential to a hospital.

The physical characteristics of the hospital as a whole must be evaluated from the standpoint of the patient. As the medical profession has attempted in the past decades constantly to improve and stimulate the development of hospitals, consideration was given as to whether the institutions in the coal-mining areas have received the approval of representative organizations of the medical profession, namely, the American Medical Association and the American College of Surgeons.

To consider the adequacy of inanimate facilities as a sole criterion of medical care, however, would be a grievous error. The most important individual in medical service is the physician upon whose wisdom, skill, and integrity depends the proper use of the instruments of medicine for the welfare of the patient. Recognizing the many and varied arrangements by which physicians serve hospitals, an attempt has been made to indicate the availability of the physicians for service within the hospitals studied. Of great importance to the medical profession is the profession of nursing, for it is the nurse who is frequently at the bedside of the patient, observing the course of illness, administering the prescribed treatments, and providing for his comfort, ease, and peace of mind. Therefore, indication of the extent of nursing service was considered to be of value to the Survey.

Primary emphasis in the study was placed on the size, distribution, ownership, and some of the principal facilities and characteristics of the hospitals serving the employees (and their dependents) of the

260 bituminous-coal mines selected as representatives of those in custody of the Government. Inasmuch as the hospitals that serve the people associated with the 260 mines also serve the persons dependent for their livelihood on a much larger number of coal mines, this phase of the study gives a broader index as to conditions than do some of the other findings of the Survey. The 260 mines are located in 105 counties of the 22 major bituminous-coal-producing States; but to study the hospitals, it was necessary to go beyond these county lines.

Data were gathered on 153 hospitals in all bituminous-coal areas, all but 16 of which are so-called "registered" hospitals and comply with certain minimal requirements established by the American Medical Association. Exclusive of 17 hospitals visited in metropolitan centers,<sup>1</sup> almost half of the total number of registered hospitals in 127 counties were visited by medical members of the Survey teams.

### *Regional Characteristics*

The quality and extent of the available hospital facilities vary according to geographic areas. Area I, comprising western Pennsylvania, northern West Virginia, eastern Ohio, and the western tip of Maryland, is characterized by its highly developed and diversified industries. The population is concentrated and distributed in relatively large cities, with Pittsburgh as a focal center, and the bituminous-coal miners, comprising about 38 percent of the total bituminous-coal miners in the Nation, depend only to a very slight extent upon the limited facilities of isolated mining camps. The problem of evaluating the medical facilities available in this area is complicated by this dispersion. The larger cities of Area I maintain a number of fairly large hospitals. Pittsburgh, the principal medical center in the area, serves the greater part of western Pennsylvania, a portion of northern West Virginia, and even parts of Ohio adjacent to the West Virginia Panhandle. Notwithstanding the concentration of the population, about one-half of the medical facilities observed serving the mining population were in smaller cities

<sup>1</sup> Allegheny County, Pa.; Kanawha County, W. Va.; Jefferson County, Ala.; Jackson County, Mo.; Polk County, Iowa; Salt Lake County, Utah; and St. Louis County, Mo.

of 10,000 population or less. These cities are marketing, trading, social, and political centers, and also the medical centers of small areas. Many such cities are associated with industries other than coal and in some cases anticipate considerable increase in size, and the bonds existing between the city and coal mining are no longer so important. A prominent feature of this area is the well-developed, interlocking transportation system of highways and railroads. Still another pertinent feature observed in this area is the lack of dependence upon contract arrangements for hospital services. The wide dispersion of people in fairly large community centers having hospital facilities permits the individual a wide choice of physicians and of hospitals. Many of the miners in Area I have subscribed to voluntary health-insurance plans, following the general trend of the country at large, and dependence upon contract arrangements for hospital services is not as strong as in other areas.

In Area II, extending from southern West Virginia into Kentucky, Tennessee, Virginia, and Alabama, the very character of the country changes considerably, affecting in large measure the distribution of the population. Large centers of population, 100,000 or more, are few in Area II, which contains approximately 43 percent of all the bituminous-coal-mine employees of the United States. The larger centers of population, such as Charleston, Birmingham, Knoxville, Chattanooga, and Louisville, may well be considered the principal medical centers of this area, although the last three cities are virtually outside the principal coal-producing districts. Over three-fourths of the other communities of this area in which hospital facilities were inspected have less than 10,000 population. They serve a widely scattered group, distributed in small communities along the highways and railroads. The hospitals, particularly in the smaller communities, are characteristically small. In a number of these small cities and towns, several small hospitals may exist, each attempting to provide—within its capacities—those facilities that are essential for medical care. The majority of hospitals observed in Area II are privately owned.

Area III, the third largest in terms of bituminous-coal production and employment, is in many respects

comparable to Area I. It includes Indiana, Illinois, Iowa, and Michigan, which together employ almost 12 percent of all bituminous-coal-mine employees. Three-fourths of the miners in this area work and live in Illinois. There are many manufacturing industries, a moderate concentration of population, and well-developed transportation systems in the coal fields of Area III. The population centers appear to be equal in size with those in Area II. Less than half of the miners in this area are in cities of population under 10,000. Accessibility to hospitals is a less difficult problem than that involved in the mountainous country of Area II. Large medical centers some distance from the principal coal-producing districts are available in Chicago, Ill., Indianapolis, Ind., St. Louis, Mo., Louisville, Ky., and Cincinnati, Ohio. Some smaller medical centers are Evansville, Ind., and Peoria and Springfield, Ill. In Area III, the hospitals visited in the towns of less than 10,000 population are smaller than those observed in the same-size towns in Area I but, again, are larger than those observed in Area II. Because the land is flat or rolling, travel from mines or miners' homes to hospitals is not a serious problem in most places in Area III.

In Area IV, including Arkansas, Kansas, Missouri, and Oklahoma, the coal-mining population is not heavily concentrated and does not have highly integrated and extensively developed transportation. The area employs only about 2 percent of the total bituminous-coal miners of the Nation. Between 35 and 40 percent of the employment and approximately 75 percent of the production in this area come from stripping operations. Part of Area IV in which coal is mined is somewhat industrialized. Fort Smith, Ark., which serves as a center of mining activity, is not a medical center of the importance of Pittsburgh, in Area I, of Charleston, in Area II, or of Chicago, in Area III. Kansas City is the only city close to the center of the coal fields of this southwestern area that may be considered a medical center in which highly specialized services are available. The hospitals in the area are mostly small and predominantly located in cities of less than 10,000 population.

Area V, which includes the Rocky Mountains and sections of the far West, contains many of the features observed in Area II, in that it is mountainous. The



*Small hospital in coal-mining area of the far West. Of the hospitals surveyed, 38 percent were under 60-bed capacity; 37 percent were from 61- to 150-bed capacity; and the remainder were larger.*

general population is much less heavily concentrated, and centers of population are much greater distances apart. The mining population, about 5 percent of the total in the United States, is well distributed over a number of States. (See map I.) Over 60 percent of the communities in which hospital facilities were examined are of less than 10,000 population. These communities serve a wide radius. In the Rocky Mountains, the largest medical centers available to most miners are Salt Lake City and Denver, but distances to these centers are much greater than to medical centers in other bituminous-coal areas, for most of the mining population is far-removed from these cities. In the Northwest, miners are relatively close to Seattle and Tacoma, Wash. Outside of these metropolitan cities, the hospitals which were surveyed, with few exceptions, are relatively small.

Although large medical centers have been established in all five areas, miners and their families use them only to a limited extent, first, because of the desire of hospital patients to be close to their homes, where they can be visited by friends and family; second, because of the cost and difficulty of transporting patients over the required distances, sometimes great; third, because they wish to be hospitalized in a nearby institution where their attending physician is a staff member; fourth, because a local

hospital is recommended to them either by their attending physician or by their employers in instances of industrial injury; and fifth, but not the least important, because of the existence of prepayment plans for hospitalization, nearly 60 percent of which limit the subscribers to the local hospital or hospitals.

### *Size of Hospitals*

Of the 153 hospitals used primarily by the miners (and their dependents) employed at the 260 mines covered in the Survey, 54 were surveyed in Area I, 43 in Area II, 31 in Area III, 7 in Area IV, and 18 in Area V. There is an extreme range in the sizes of these hospitals, the smallest having 12 beds and the largest 678. Only about one-fourth were considered large hospitals, that is, those having a capacity exceeding 150 beds. The remainder were divided equally among medium-size hospitals having a bed capacity of 61 to 150 and the small institutions with a capacity of 60 beds each or less. According to table 38, small hospitals predominated in Areas II, III, IV, and V. Medium-size hospitals and large hospitals are more prevalent in Area I.

In terms of bed capacity, the hospitals observed in Area I have the highest average; those in Area II, the smallest. In Area I, 6 of the hospitals observed have bed capacities greater than 300. These are

in Pittsburgh, Pa., Johnstown, Pa., and Wheeling, W. Va., and contained more than 3,000 of the beds in the hospitals available to the miners who are employed at the mines surveyed. In Area II only 1 hospital of more than 300-bed capacity, a company-owned hospital at Birmingham, Ala., was observed. In the areas west of the Appalachians, 3 hospitals with a capacity of more than 300 beds each were studied. These hospitals, whose total bed capacity represents approximately one-fourth of the total number of beds available in hospitals used by miners employed at surveyed mines in these areas, are in Kansas City, Mo., St. Louis, Mo., and Springfield, Ill. It is evident from these data that, with the exceptions enumerated, hospitals with capacities of more than 300 beds were seldom accessible or used by coal miners and their dependents. The fact that these 10 large hospitals are included in the statistical data on hospital facilities should be borne in mind by the reader, for they obscure somewhat the fact that mines in general depend largely upon hospitals

of smaller than the average in size and in many places upon definitely small hospitals, and create a tendency to overestimate the number of hospital beds available to miners.

Overcrowding of hospitals was evident during the course of the Survey. Superintendents and other officials of the institutions that were visited in many instances voiced the opinion that places designed for a given bed capacity were required to provide space for a larger number of patients. The observers visited hospitals where single rooms were converted into double rooms, where waiting rooms and porches had been converted into small four- and six-bed wards, and where beds were placed in hallways. In several hospitals in Areas I and II, wards were observed where the beds were so crowded together that the space separating them was barely wide enough for a person to walk through. Overcrowding not only tends to decrease the adequacy of hospital services but, further, endangers patients in the event of fire, since many of these hospitals, as well as others, were

TABLE 38.—*Distribution, by area and by ownership, of small, medium, and large hospitals surveyed*

Area	Size of hospital, by bed capacity	Ownership						Total	
		Proprietary		Nonprofit		Governmental			
		Number of hospitals	Per-cent	Number of hospitals	Per-cent	Number of hospitals	Per-cent	Number of hospitals	Per-cent
I.....	1-60.....	2	4	7	13	0	0	9	17
	61-150.....	2	4	20	37	5	9	27	50
	151 and over.....	0	0	17	31	1	2	18	33
	Total.....	4	8	44	81	6	11	54	100
II.....	1-60.....	16	37	4	9	0	0	20	46
	61-150.....	14	32	2	5	0	0	16	37
	151 and over.....	2	5	5	12	0	0	7	17
	Total.....	32	74	11	26	0	0	43	100
III, IV, and V.....	1-60.....	13	23	9	16	7	12	29	51
	61-150.....	2	4	9	16	2	4	13	24
	151 and over.....	0	0	14	25	0	0	14	25
	Total.....	15	27	32	57	9	16	56	100
I, II, III, IV, and V.....	1-60.....	31	20	20	13	7	5	58	38
	61-150.....	18	12	31	20	7	5	56	37
	151 and over.....	2	1	36	23	1	1	39	25
	Total.....	51	33	87	56	15	11	153	100

often observed to be improperly safeguarded against this hazard.

At each of the mines visited, the medical teams asked the company officials and union representatives which institutions were used by the employees. The answers were verified later when the designated hospitals were visited. From this information it was determined that all but a very small number of the miners at 67 percent of the surveyed mines utilized only one hospital and that the employees at the remaining mines, 33 percent of the total, exercised a choice between two or more hospitals.

### Ownership of Hospitals

Inasmuch as ownership or control of hospitals is commonly divided into governmental and non-governmental, and the latter category usually is classified as either proprietary or nonprofit institutions, the same classifications were made with respect to the 153 hospitals visited. It was found, as shown in table 38, that 15 of the hospitals, or 11 percent of the total, were controlled by city, county, or State governments; 56 percent of the hospitals were under the administration of nonprofit associations, including religious groups; and about 33 percent were owned and operated for profit by individuals, partnerships, or corporations. Proprietary hospitals were found to be more common in the Southern Appalachian area than in other areas; almost three-fourths of the inspected hospitals in that area are proprietary. Nonprofit hospitals were most common in the Northern Appalachians, 4 out of every 5 hospitals in that area falling in this category. Government-owned hospitals were not found in Area II and comprised only a small minority of those in the other areas. The findings with respect to the ownership of the hospitals available to the surveyed mines coincide fairly well with the distribution of ownership of hospitals in general, with the exception of those observed in Area II. Whereas, non-governmental hospitals registered by the American Medical Association throughout the United States are predominantly nonprofit, those in the Southern Appalachian area are predominantly proprietary.

There is an interesting relationship between the ownership and the size of the hospitals. The

TABLE 39.—Distribution, by type of ownership and by area, of beds in hospitals surveyed

Area	Ownership						Total	
	Proprietary		Nonprofit		Governmental			
	Number of hospital beds	Percent of total for area	Number of hospital beds	Percent of total for area	Number of hospital beds	Percent of total for area	Number of hospital beds	Percent of total for area
I.....	254	3	7,542	88	749	9	8,545	46
II.....	2,458	59	1,715	41	0	0	4,173	22
III, IV, and V....	470	8	5,110	84	519	8	6,099	32
Total.....	3,182	17	14,367	76	1,268	7	18,817	100

proprietary hospitals as a rule are the smaller institutions; although they comprise one-third of all the hospitals surveyed, their bed capacity is only one-sixth of the total. On the other hand, nonprofit institutions, which comprise a little more than half of the total number of hospitals in the study, account for three-fourths of all the beds. The relationship is particularly noticeable in the data obtained in the Southern Appalachian area, where 75 percent of the hospitals studied are proprietary but account for only 59 percent of the beds. (See table 39).

Although the bed capacity and distribution of hospitals are indicative of the hospital service available, such facilities as surgical operating rooms, delivery rooms, labor rooms, nurseries, laboratories, and X-ray equipment are measures of the capacity of hospitals to render service, when considered in connection with size and characteristics of the professional staff—physicians, nurses and technicians. All of the hospitals that have been surveyed rendered the usual surgical and medical services, and all but two cared for obstetrical cases.

### Operating Rooms

Although medical and hospital authorities agree unanimously that the surgical department of a hospital is one of the most important units and carries a serious responsibility for insuring efficient care of patients, there is no agreement as to the numerical requirements for operating rooms in the

hospitals of various sizes. The American College of Surgeons states<sup>2</sup> that for surgical operations each hospital should maintain a special unit set apart from all other departments and, as a minimum standard, requires "there should be at least two operating rooms for general use, \* \* \* and additional operating rooms for the specialties as demands warrant." The American Medical Association has established<sup>3</sup> as an essential for registration by its Council on Medical Education and Hospitals that "institutions accepting surgical patients \* \* \* should provide a modernly equipped operating room \* \* \*." The American Hospital Association considers a ratio of 1 surgical operating room per 50 beds as desirable. In view of the varied requirements promulgated by these

authorities, it was decided to compare the numerical sufficiency of the operating rooms in the hospitals that were surveyed with the following arbitrary criterion: Two surgical operating rooms for each hospital with a bed capacity of 150 or less; and at least 3 operating rooms for each hospital with a bed capacity exceeding 150.

Table 40 shows that, of the 114 small and medium-size hospitals, 40, or one-fourth of the surveyed hospitals, have only 1 operating room each. Of the 39 large hospitals, 6 have only 2 operating rooms each. Thus, 46 hospitals, or 30 percent of the total number visited, fall below the index. On the other hand, 30 of the small and medium-size hospitals and 27 of the large hospitals, totaling 57, or 37 percent of all that were surveyed, exceed the index. The table also indicates that the incapacity to meet the arbitrary criterion is most evident in the small hospitals and that the ability to exceed the criterion

<sup>2</sup> American College of Surgeons, *Manual of Hospital Standardization*, 1946.

<sup>3</sup> Council on Medical Education and Hospitals, American Medical Association, *Essentials of a Registered Hospital: Repr.*, with modifications, from *Jour. Am. Med. Assoc.*, vol. 112, May 27, 1939, pp. 2166-2188.



*Operating room of a modern, medium-size hospital. Many of the small and medium-size hospitals serving miners have only one operating room each, and a number of these are poorly designed and ill-equipped.*

is shown predominantly by the medium-size and large hospitals.

The operating rooms have been observed to vary considerably in characteristics. In the large hospitals, the surgical department most often consisted of a suite, containing a number of major surgical rooms, a physician's scrub room, a workroom, a sterilizing room, minor surgical rooms, and orthopedic and urological rooms. The equipment included operating tables, anesthetic machines, special lighting fixtures and sparkproof switches, and multiple sets of instruments. Excellent workrooms were observed, which provided adequate spacing, lighting, and working environment for the necessary preparation of the materials used in surgery. Adequate sterilization equipment was observed. The facilities

in the large hospitals were considered to be generally adequate for rendering efficient surgical service.

In small hospitals, particularly those with only one operating room, the surgical operating room and some accommodation for sterilization usually occupy the entire space devoted to surgery. In some, the surgical room may be exceptionally well equipped in all details; however, in others, lighting may not be completely adequate, and the sterilizing equipment, particularly the autoclaves, may be small and serve in multiple capacities for both surgery and obstetrics. In some small hospitals, facilities for scrubbing were often rudimentary, located within the operating room proper, and thus inadequate. In other small hospitals, adequate deep sinks with elevated faucets and satisfactory controlling handles were located

TABLE 40.—Distribution of hospitals surveyed, by number of surgical operating rooms per hospital, by coal-mining area, and by size of hospital

Area	Number of surgical operating rooms in hospital	Bed capacity of hospital						Total	
		1-60		61-150		151 and over			
		Number of hospitals	Percent	Number of hospitals	Percent	Number of hospitals	Percent	Number of hospitals	Percent
I.....	1.....	5	56	1	4	0	0	6	11
	2.....	2	22	17	63	3	17	22	41
	3.....	2	22	4	15	1	5	7	13
	4 and over.....	0	0	5	18	14	78	19	35
	Total.....	9	100	27	100	18	100	54	100
II.....	1.....	14	70	1	6	0	0	15	35
	2.....	4	20	8	50	0	0	12	28
	3.....	1	5	4	25	2	29	7	16
	4 and over.....	1	5	3	19	5	71	9	21
	Total.....	20	100	16	100	7	100	43	100
III, IV, and V.....	1.....	19	65	0	0	0	0	19	34
	2.....	8	28	5	38	3	22	16	29
	3.....	2	7	7	54	3	21	12	21
	4 and over.....	0	0	1	8	8	57	9	16
	Total.....	29	100	13	100	14	100	56	100
I, II, III, IV, and V.....	1.....	38	65	2	3	0	0	40	26
	2.....	14	24	30	54	6	16	50	33
	3.....	5	9	15	27	6	15	26	17
	4 and over.....	1	2	9	16	27	69	37	24
	Total.....	58	100	56	100	39	100	153	100



just outside of the operating room in a separate room connected by a swinging door.

Observation of medium-size hospitals indicates that the surgical departments are generally well-equipped. In the medium-size hospitals having two or more operating rooms, there are indications of recent design and equipment.

## Obstetrical Facilities

Medical authorities agree that hospitals which provide maternity care should also supply exclusive and adequate facilities for mothers and the newborn. Accordingly, hospitals accepting obstetrical patients should have at least one delivery room, a labor room, and a nursery. It is reasonable to expect that hospitals exceeding 60 beds capacity have at least 2 delivery rooms.

Of the 151 hospitals surveyed, which render obstetrical service to the wives of miners, 24, or 16 percent, do not maintain separate delivery rooms. Nineteen of these hospitals are small and 5 of medium size. According to table 41, 45 hospitals of medium and large size (most of them of medium size), comprising 30 percent of the total, have only 1 delivery room each. On the other hand, 2 of the small hospitals have 2 delivery rooms each, and 4 of the medium and large hospitals have 3 or more delivery rooms each.

In the hospitals that accept maternity cases and have no delivery rooms, operating rooms were utilized for obstetrics, or patients were delivered in a private or semiprivate room.

In several of the hospitals observed, delivery rooms have been improvised to meet emergency needs. These rooms were usually equipped with standard

TABLE 41.—Distribution of hospitals surveyed, by number of delivery rooms per hospital, by coal-mining area, and by size of hospital

Area	Number of delivery rooms in hospital	Bed capacity of hospital						Total	
		1-60		61-150		151 and over			
		Number of hospitals	Per- cent	Number of hospitals	Per- cent	Number of hospitals	Per- cent	Number of hospitals	Per- cent
I.....	0.....	3	33	1	4	0	0	4	8
	1.....	6	67	22	81	3	18	31	58
	2.....	0	0	3	11	13	76	16	30
	3 and over.....	0	0	1	4	1	6	2	4
	Total.....	9	100	27	100	17	100	53	100
II.....	0.....	9	45	4	25	0	0	13	30
	1.....	10	50	10	63	1	14	21	49
	2.....	1	5	2	12	6	86	9	21
	3 and over.....	0	0	0	0	0	0	0	0
	Total.....	20	100	16	100	7	100	43	100
III, IV, and V.....	0.....	7	25	0	0	0	0	7	13
	1.....	20	71	8	62	1	7	29	57
	2.....	1	4	5	38	11	79	17	31
	3 and over.....	0	0	0	0	2	14	2	3
	Total.....	28	100	13	100	14	100	55	100
I, II, III, IV, and V.....	0.....	19	33	5	9	0	0	24	16
	1.....	36	63	40	71	5	13	81	54
	2.....	2	4	10	18	30	79	42	28
	3 and over.....	0	0	1	2	3	8	4	2
	Total.....	57	100	56	100	38	100	151	100



*Improvised delivery room in hospital. Frequently such rooms are well-equipped, but small in size. Sixteen percent of the surveyed hospitals which render obstetrical services have no delivery rooms.*

material but were narrow and cramped. In one medium-size hospital, a delivery room was devised by placing a glass partition in the only major operating room, an arrangement that would admit a bed but that provided little space for equipment or persons. At the time this delivery room was observed, it contained no equipment.

Labor rooms in modern hospitals are part of the obstetrical department and are usually situated adjacent to the delivery room, or rooms, in order that preparation for delivery and observation of the course of labor can be accomplished under the supervision of a specially trained staff. Close proximity of the labor room to the delivery room permits transfer of patients, when ready for delivery, with a minimum of delay. In hospitals where no labor room is provided, patients in labor are attended either in their private rooms or in wards.

More than 40 percent of the hospitals accepting

patients of this class were observed to lack labor rooms. The greatest deficiency was noted in connection with the small hospitals, of which 40 out of a total of 57 did not provide separate labor rooms. However, 20 of the 56 medium-size hospitals and 5 of the 38 large hospitals also revealed this inadequacy.

Nurseries are regarded by authorities as essential adjuncts to obstetrical departments. The well-designed nursery consists of a large, adequately ventilated, isolated room in which infants may be cared for and completely separated from infectious contacts, under the supervision of a nurse especially trained in infant care; such a room has an anteroom where infants are bathed and fed. Equipment is maintained for the care of premature infants or for the emergency treatment of babies in respiratory or cardiac distress. Relatively few hospitals—only 15 of those visited, nearly all of them small—failed to provide nurseries. Nevertheless, consider-

able variation was noted in the adequacy of the nurseries. In the large and medium-size hospitals, the nurseries observed are isolated and are spacious enough to permit proper separation of bassinets and have a separate treatment room. A number of these hospitals also have incubators and oxygen equipment for the care of premature infants. Improvised nurseries were observed in a few hospitals that apparently were required to meet emergency needs. In one medium-size hospital, such a nursery is not isolated and is so crowded that the bassinets are placed in contact with each other, and the infants also are kept in an adjacent treatment room. In another hospital without a nursery room, the infants are put on beds and separated from each other by pillows.

In the small hospitals in which nursery facilities were not found, infants are kept in bassinets in the mothers' rooms in the belief that such a provision

affords better care for the infants than is obtainable in an inadequate nursery room.

Except for a few large and medium-size hospitals, separate rooms for the preparation of infants' formulas were not observed.

### *Clinical Laboratories*

Owing to the valuable assistance rendered by laboratory procedures in the diagnosis of illness, the laboratory has become one of the essential facilities at the disposal of the physician. Complete laboratories are those that have the facilities and personnel for making routine examinations, such as blood counts and urinalyses, and for performing special examinations, such as blood chemistry, serology, bacteriology, and tissue pathology. Inasmuch as many small hospitals regard it as impracticable and economically unsound to have com-



*Nursery room in hospital. Most hospitals accepting obstetrical cases have nursery rooms, but a number of them are improvised, crowded, or not isolated.*

plete laboratories, their facilities are limited virtually to routine clinical examination.

Only eight small hospitals, or about 5 percent of all the surveyed hospitals, do not have clinical laboratory facilities. All of the large and more than three-fourths of the medium-size hospitals have complete and excellently equipped laboratories, some of which were exceptionally well designed and fitted for research work. Most of the laboratories in the medium-size hospitals are equipped for nearly all procedures. Those which lack facilities for work in pathology were reported to be obtaining the missing services from nearby hospitals, medical schools, or independent laboratories.

Fifty of the fifty-eight small hospitals have laboratories; and 18 of them, or almost one-third of the total, contain large laboratories.

### *X-ray Facilities*

All but three small hospitals were observed to have X-ray facilities, which were primarily designed and used for diagnosis rather than therapy. Only a little more than one-third of the hospitals surveyed have deep X-ray therapy equipment. Such equipment was noted in 80 percent of the large hospitals, in 35 percent of the medium-size hospitals, and in 3 percent of the small hospitals.

The X-ray departments of the large hospitals were observed to contain fluoroscopic, radiographic, urologic, and therapeutic equipment and to possess dark rooms, viewing rooms, and accommodations for files and records. Another feature noted was the presence of waiting rooms, dressing units, and toilets.

At some of the small hospitals, old and outmoded



*Clinical laboratory in hospital. Only eight hospitals—all small ones—were found without laboratory facilities.*



*X-ray equipment in hospital serving miners. Of those surveyed, all but three small hospitals have X-ray facilities, but at some small hospitals the equipment is old, outmoded, and suitable only for examinations of fractures.*

equipment suitable only for X-rays of fractures of the extremities was seen. On the other hand, in some of the small hospitals with modern equipment, radiologists were not employed, but interpretive services were purportedly obtained from consultants.

Facilities for applying radium therapy are available at 37 percent of the hospitals in the Survey. Such facilities were generally owned by the same hospitals as had made provisions for X-ray therapy. However, although only two of the small hospitals have facilities for X-ray therapy, six, primarily in Area II, have equipment for radium therapy.

### *Professional and Technical Personnel*

As a measure of the capacity of hospitals to render service, the numbers and qualifications of the professional, technical, and auxiliary staffs are of even

greater importance than physical facilities. The Survey teams made no attempt to inquire into the qualifications of members of the medical and allied professions or to ascertain standards or ethics of medical practice in hospitals; but a numerical count of the personnel, by broad classes, was made to reach a rough index of the ability of hospitals to meet the usual needs for care of hospitalized patients.

In terms of the physicians on hospital staffs, the minimum number observed in the Survey was 1 and the maximum 202. As might be expected, the size of the physicians' staff was found to bear a close relationship to the bed capacity of the hospital. Although 28, or almost half, of the small hospitals had staffs of only 1 to 4 persons each, 12 percent of them, according to table 42, had staffs consisting of more than 16 persons. The size of the staff of small hospitals varied considerably in all areas, but in the

Southern Appalachian region they were predominantly small, no hospital in that area having more than 16 physicians on its staff. The medium-size hospitals exhibited almost as wide a dispersion as the small ones. Although half of the medium-size hospitals had 21 or more physicians on their staffs, there were 4 hospitals, or 7 percent of the total, which had only 1 to 4 physicians each. Three of these hospitals with small staffs were in Area II.

In the hospitals having more than 150 beds, none

was observed with less than a dozen physicians on its staff; and, except for 3 instances, all of the large hospitals were found to have staffs of 21 or more physicians each.

Data were obtained with respect to the presence on the hospital staffs of physicians specializing in three major fields—surgery, internal medicine, and obstetrics. Table 43 indicates that 45, or almost 30 percent, of all the hospitals surveyed have no physicians on their staffs who specialize in surgery. This should not be taken to mean that surgery is

TABLE 42.—Distribution of hospitals surveyed, by total number of physicians on staff, by coal-mining area, and by size of hospital

Area	Total number of physicians on staff	Bed capacity of hospitals						Total	
		1-60		61-150		151 and over		Number of hospitals	Percent
		Number of hospitals	Percent	Number of hospitals	Percent	Number of hospitals	Percent		
I.....	1-4.....	1	11	0	0	0	0	1	2
	5-8.....	2	22	2	7	0	0	4	7
	9-12.....	2	22	2	7	0	0	4	7
	13-16.....	1	11	2	7	0	0	3	6
	17-20.....	1	11	5	19	1	6	7	13
	21 and over.....	2	22	16	60	17	94	35	65
	Total.....	9	99	27	100	18	100	54	100
II.....	1-4.....	12	60	3	19	0	0	15	35
	5-8.....	5	25	4	25	0	0	9	21
	9-12.....	2	10	2	12	0	0	4	9
	13-16.....	1	5	4	25	1	14	6	14
	17-20.....	0	0	0	0	0	0	0	0
	21 and over.....	0	0	3	19	6	86	9	21
	Total.....	20	100	16	100	7	100	43	100
III, IV, and V.....	1-4.....	15	52	1	8	0	0	16	29
	5-8.....	4	14	0	0	0	0	4	7
	9-12.....	2	7	1	8	0	0	3	5
	13-16.....	4	14	2	15	0	0	6	11
	17-20.....	3	10	0	0	1	7	4	7
	21 and over.....	1	3	9	69	13	93	23	41
	Total.....	29	100	13	100	14	100	56	100
I, II, III, IV, and V.....	1-4.....	28	49	4	7	0	0	32	21
	5-8.....	11	19	6	11	0	0	17	11
	9-12.....	6	10	5	9	0	0	11	7
	13-16.....	6	10	8	14	1	3	15	10
	17-20.....	4	7	5	9	2	5	11	7
	21 and over.....	3	5	28	50	36	92	67	44
	Total.....	58	100	56	100	39	100	153	100

not performed in these hospitals but rather that the surgical work performed there is done by general practitioners. On the other hand, 48, or a little over 30 percent, of the hospitals have on their staffs 6 or more doctors who specialize in surgery.

Specialists in internal medicine, according to table 44, were not included on the staffs of 66, or 43 per-

cent, of all the hospitals visited. No medical internists were found at 78 percent of the small hospitals or at 36 percent of the medium-size hospitals; 1 large hospital had none on its staff. A fifth of the hospitals, including 2 small hospitals and 7 medium-size hospitals, had 6 or more specialists in internal medicine on their staffs.

TABLE 43.—Distribution of hospitals surveyed, by number of surgeons on staff, by coal-mining area, and by size of hospital

Area	Number of surgeons on staff	Bed capacity of hospitals						Total	
		1-60		61-150		151 and over			
		Number of hospitals	Percent	Number of hospitals	Percent	Number of hospitals	Percent	Number of hospitals	Percent
I.....	0.....	2	22	1	4	0	0	3	6
	1.....	2	22	3	1	0	0	5	9
	2.....	2	22	2	7	1	6	5	9
	3.....	3	34	0	0	0	0	3	6
	4.....	0	0	7	26	0	0	7	13
	5.....	0	0	4	15	2	11	6	11
	6 and over.....	0	0	10	37	15	83	25	46
	Total.....	9	100	27	100	18	100	54	100
II.....	0.....	11	55	3	19	0	0	14	33
	1.....	4	20	2	12	0	0	6	14
	2.....	1	5	3	19	0	0	4	9
	3.....	3	15	3	19	0	0	6	14
	4.....	0	0	1	7	0	0	1	2
	5.....	0	0	2	12	1	14	3	7
	6 and over.....	1	5	2	12	6	86	9	21
	Total.....	20	100	16	100	7	100	43	100
III, IV, and V.....	0.....	20	69	7	54	1	7	28	50
	1.....	7	24	3	23	0	0	10	18
	2.....	2	7	2	15	0	0	4	7
	3.....	0	0	0	0	0	0	0	0
	4.....	0	0	0	0	0	0	0	0
	5.....	0	0	0	0	0	0	0	0
	6 and over.....	0	0	1	8	13	93	14	25
	Total.....	29	100	13	100	14	100	56	100
I, II, III, IV, and V.....	0.....	33	57	11	20	1	3	45	29
	1.....	13	22	8	14	0	0	21	14
	2.....	5	9	7	13	1	3	13	9
	3.....	6	10	3	5	0	0	9	6
	4.....	0	0	8	14	0	0	8	5
	5.....	0	0	6	11	3	7	9	6
	6 and over.....	1	2	13	23	34	87	48	31
	Total.....	58	100	56	100	39	100	153	100

Of the three major specialties, obstetricians were least represented on hospital staffs. (See table 45.) Of the 58 small hospitals, 50 are without obstetricians on their staffs, 7 have only 1 each, and 1 hospital has 3.

Of the 56 medium-size hospitals, 27, or almost half,

have no obstetricians, and 16, or almost a third, have only 1 each. Five of the medium-size hospitals have 6 or more physicians on their staffs who specialize in obstetrics. Among the large hospitals, 4 were found to have no obstetricians on their staffs; on the other hand, 10 have 6 or more on their staffs.

TABLE 44.—Distribution of hospitals surveyed, by number of medical internists on staff, by coal-mining area, and by size of hospital

Area	Number of medical internists on staff	Bed capacity of hospitals						Total	
		1-50		61-150		151 and over			
		Number of hospitals	Percent	Number of hospitals	Percent	Number of hospitals	Percent	Number of hospitals	Percent
I.....	0.....	6	67	5	19	1	6	12	23
	1.....	1	11	5	19	0	0	6	11
	2.....	0	0	5	19	0	0	5	9
	3.....	0	0	1	3	0	0	1	2
	4.....	0	0	3	11	1	6	4	7
	5.....	0	0	2	7	5	27	7	13
	6 and over.....	2	22	6	22	11	61	19	35
	Total.....	9	100	27	100	18	100	54	100
II.....	0.....	13	65	6	38	0	0	19	44
	1.....	6	30	5	31	0	0	11	26
	2.....	1	5	3	19	1	14	5	12
	3.....	0	0	1	6	0	0	1	2
	4.....	0	0	0	0	1	14	1	2
	5.....	0	0	0	0	1	14	1	2
	6 and over.....	0	0	1	6	4	58	5	12
	Total.....	20	100	16	100	7	100	43	100
III, IV, and V.....	0.....	26	90	9	69	0	0	35	63
	1.....	3	10	1	8	0	0	4	7
	2.....	0	0	2	15	0	0	2	4
	3.....	0	0	1	8	2	14	3	5
	4.....	0	0	0	0	1	7	1	2
	5.....	0	0	0	0	3	22	3	5
	6 and over.....	0	0	0	0	8	57	8	14
	Total.....	29	100	13	100	14	100	56	100
I, II, III, IV, and V.....	0.....	45	78	20	36	1	3	66	43
	1.....	10	17	11	20	0	0	21	14
	2.....	1	2	10	18	1	3	12	8
	3.....	0	0	3	5	2	5	5	3
	4.....	0	0	3	5	3	7	6	4
	5.....	0	0	2	4	9	23	11	7
	6 and over.....	2	3	7	12	23	59	32	21
	Total.....	58	100	56	100	39	100	153	100



Data collected with respect to other medical specialties, such as pediatrics and eye-ear-nose-and-throat, show that they are not represented on the staffs of a large number of hospitals and are distributed among other hospitals in about the same proportions as the so-called major specialties.

Because of the dependence of physicians, including specialists, upon pathologists and radiologists for interpretive assistance in making accurate diagnoses,

data were collected on the distribution of pathologists and radiologists among the hospitals that were surveyed. These data are presented in table 46.

### Laboratory Technicians

Inasmuch as clinical laboratory work is of great importance in hospitals, it is considered essential

TABLE 45.—Distribution of hospitals surveyed, by number of obstetricians on staff, by coal-mining area, and by size of hospital

Area	Number of obstetricians on staff	Bed capacity of hospitals						Total	
		1-50		61-100		151 and over		Number of hospitals	Percent
		Number of hospitals	Percent	Number of hospitals	Percent	Number of hospitals	Percent		
I.....	0.....	7	78	8	30	3	17	18	33
	1.....	2	22	9	33	0	0	11	21
	2.....	0	0	4	15	5	28	9	17
	3.....	0	0	2	7	3	17	5	9
	4.....	0	0	1	4	4	22	5	9
	5.....	0	0	0	0	1	5	1	2
	6 and over.....	0	0	3	11	2	11	5	9
	Total.....	9	100	27	100	18	100	54	100
II.....	0.....	16	80	8	50	0	0	24	56
	1.....	4	20	6	38	1	14	11	25
	2.....	0	0	1	6	4	58	5	12
	3.....	0	0	0	0	0	0	0	0
	4.....	0	0	0	0	0	0	0	0
	5.....	0	0	0	0	1	14	1	2
	6 and over.....	0	0	1	6	1	14	2	5
	Total.....	20	100	16	100	7	100	43	100
III, IV, and V.....	0.....	27	92	11	84	1	7	39	70
	1.....	1	4	1	8	1	7	3	5
	2.....	0	0	0	0	1	7	1	2
	3.....	1	4	0	0	2	15	3	5
	4.....	0	0	0	0	1	7	1	2
	5.....	0	0	0	0	1	7	1	2
	6 and over.....	0	0	1	8	7	50	8	14
	Total.....	29	100	13	100	14	100	56	100
I, II, III, IV, and V.....	0.....	50	86	27	48	4	10	81	53
	1.....	7	12	16	29	2	5	25	16
	2.....	0	0	5	9	10	26	15	10
	3.....	1	2	2	3	5	13	8	5
	4.....	0	0	1	2	5	13	6	4
	5.....	0	0	0	0	3	7	3	2
	6 and over.....	0	0	5	9	10	26	15	10
	Total.....	58	100	56	100	39	100	153	100

that all hospitals have at least one laboratory technician, that a medium-size hospital have two, and a large hospital at least three. According to table 47, approximately 30 percent of the small hospitals had none; 57 percent of them had one; and the remainder had at least two. None of the small hospitals had as many as four. Of the medium-size hospitals, about 10 percent were found to have no laboratory technicians on their staffs, and another 20 percent had only one each, but more than a third of these hospitals had at least three. Laboratory technicians were more plentiful, as expected, in the large hospitals, 94 percent of them having three or more on their staffs. About a fourth of the hospitals surveyed failed to meet the minimum requirements stated above.

### Nurses

The number of nurses in the hospital is another index of its ability to provide adequate medical care to patients. Sixty-two percent of the hospitals of all sizes in the Survey, according to table 48, have graduate nursing staffs of 18 or fewer graduate nurses. Eighty-eight small and medium-size hos-

pitals contributed to this high percentage of hospitals with small professional nursing staffs. Upon the basis of official information relating to hospital requirements published by the American Hospital Association and National League of Nursing Education,<sup>4</sup> a criterion of 2 beds per graduate nurse has been set simply as a measure to evaluate the extent of professional nursing service available. The artificial criterion is derived from the official estimates of the average bedside nursing hours required for each patient in 24 hours in hospitals with an average occupancy of 80 percent.

For comparative purposes, the ratio of hospital beds to graduate nursing staff has been computed for surveyed hospitals, assuming that the hospitals are 80 percent occupied, which is a safe assumption, since many were found to have an occupancy above 90 percent. According to table 49, 5 percent of 149 hospitals for which data could be obtained meet the criterion of 2 beds per graduate nurse. A ratio of more than 4 beds per graduate nurse, or less than half of the required number of nurses, was observed in 60 percent of the hospitals. Extreme instances

<sup>4</sup> Division on Nursing, Council of the American Hospital Association and Committee of the National League of Nursing Education, *Manual of the Essentials of Good Hospital Nursing Service*, American Hospital Association and National League of Nursing Education, New York, 1945.

TABLE 46.—Number of hospitals with pathologist and/or a radiologist on staff and percentage distribution, by size of hospital and by area

Area	Specialist	Bed capacity of hospital						Total	
		1-60		61-150		151 and over		Number of hospitals having specialists	Percent
		Number of hospitals having specialists	Number of hospitals surveyed	Number of hospitals having specialists	Number of hospitals surveyed	Number of hospitals having specialists	Number of hospitals surveyed		
I.....	Pathologists.....	1		9		9		19	35
	Radiologists.....	2	9	13	27	12	18	27	50
II.....	Pathologists.....	0		3		5		8	19
	Radiologists.....	0		3		5		8	19
III, IV, and V.....	Pathologists.....	0	20	3	16	9	7	12	43
	Radiologists.....	0		8		5		13	23
I, II, III, IV, and V.....	Pathologists.....	1	29	15	13	23	14	39	56
	Radiologists.....	2		24		22		48	25
			58		56		39	153	31

were observed in 21 hospitals where the ratio of beds per graduate nurse exceeds 10, or one-fifth or less of the required number of nurses. Student nurses cannot be assigned complete responsibility for the bedside nursing care of patients; nevertheless, the student nurse renders considerable service. Although it is not acceptable to apply the same measure for bedside nursing service to the activities of student nurses, nevertheless, in an attempt to evaluate the extent to which student nurses afford increased patient service, the nursing staff, graduate and student, in the hospitals has been computed in terms of the index of 2 beds per nurse. On this basis, the ratio

of 2 beds per nurse is met or exceeded by 45 percent of the hospitals. Counting both graduate and student nurses, 11 of the 149 hospitals for which data are available have more nurses each than the total number of their beds, namely, a ratio of 1 or less beds per nurse. On the other hand, a substantial percentage (30), or a total of 46 hospitals, show relatively poor ratios of more than 4 beds per nurse, and 16 of these hospitals have a ratio of more than 10 beds to each nurse.

An interesting observation of the Survey teams was that half of the hospitals visited maintained training schools for nurses, 83 percent of which are

TABLE 47.—Distribution of hospitals surveyed, by number of laboratory technicians per hospital, by coal-mining area, and by size of hospital

Area	Number of laboratory technicians per hospital	Bed capacity of hospitals						Total	
		1-60		61-150		151 and over			
		Number of hospitals	Percent	Number of hospitals	Percent	Number of hospitals	Percent	Number of hospitals	Percent
I.....	0.....	1	11	3	12	0	0	4	5
	1.....	6	67	6	23	0	0	12	23
	2.....	2	22	7	27	0	0	9	17
	3.....	0	0	5	19	1	6	6	11
	4 and over.....	0	0	5	19	17	94	22	41
	Total.....	9	100	26	100	18	100	53	100
II.....	0.....	7	35	2	12	0	0	9	21
	1.....	10	50	3	19	0	0	13	30
	2.....	2	10	4	25	0	0	6	14
	3.....	1	5	6	38	1	14	8	19
	4 and over.....	0	0	1	6	6	86	7	16
	Total.....	20	100	16	100	7	100	43	100
III, IV, and V.....	0.....	9	31	0	0	0	0	9	16
	1.....	17	59	3	23	1	7	21	38
	2.....	3	10	8	61	1	7	12	21
	3.....	0	0	1	8	4	29	5	9
	4 and over.....	0	0	1	8	8	57	9	16
	Total.....	29	100	13	100	14	100	56	100
I, II, III, IV, and V.....	0.....	17	29	5	9	0	0	22	14
	1.....	33	57	12	22	1	3	46	30
	2.....	7	12	19	34	1	3	27	18
	3.....	1	2	12	22	6	15	19	13
	4 and over.....	0	0	7	13	31	79	38	25
	Total.....	58	100	55	100	39	100	152	100

<sup>1</sup> No data for 1 hospital.

accredited by State boards of nursing education. A striking fact is the close correlation between those hospitals that maintain training schools and those that meet the criterion mentioned above as an index of adequate nursing service.

It should be realized that, during the period of the Survey, an extreme shortage of registered professional nurses existed throughout the Nation, and hospital superintendents expressed concern to members of the Survey teams over their inability to

TABLE 48.—Distribution of hospitals surveyed, by number of graduate nurses per hospital, by coal-mining area, and by size of hospital

Area	Number of graduate nurses per hospital	Bed capacity of hospitals						Total	
		1-60		61-150		151 and over			
		Number of hospitals	Percent	Number of hospitals	Percent	Number of hospitals	Percent	Number of hospitals	Percent
I.....	0-6.....	1	11	0	0	0	0	1	2
	7-12.....	7	78	2	8	2	11	11	21
	13-18.....	0	0	11	42	0	0	11	21
	19-24.....	1	11	7	26	1	6	9	17
	25-30.....	0	0	2	8	2	11	4	8
	31-36.....	0	0	2	8	4	22	6	11
	37-42.....	0	0	2	8	3	17	5	9
	43 and over.....	0	0	0	0	6	33	6	11
	Total.....	9	100	26	100	18	100	53	100
II.....	0-6.....	14	70	5	32	0	0	19	44
	7-12.....	6	30	4	25	0	0	10	23
	13-18.....	0	0	4	25	0	0	4	9
	19-24.....	0	0	1	6	1	13	2	5
	25-30.....	0	0	1	6	2	29	3	7
	31-36.....	0	0	1	6	0	0	1	2
	37-42.....	0	0	0	0	2	29	2	5
	43 and over.....	0	0	0	0	2	29	2	5
	Total.....	20	100	16	100	7	100	43	100
III, IV, and V.....	0-6.....	19	66	0	0	0	0	19	34
	7-12.....	7	24	4	31	1	7	12	21
	13-18.....	1	3	3	22	2	14	6	11
	19-24.....	2	7	1	8	0	0	3	5
	25-30.....	0	0	4	31	4	29	8	14
	31-36.....	0	0	0	0	2	14	2	4
	37-42.....	0	0	0	0	1	7	1	2
	43 and over.....	0	0	1	8	4	29	5	9
	Total.....	29	100	13	100	14	100	56	100
I, II, III, IV, and V.....	0-6.....	34	59	5	9	0	0	39	26
	7-12.....	20	34	10	18	3	8	33	22
	13-18.....	1	2	18	33	2	5	21	14
	19-24.....	3	5	9	16	2	5	14	9
	25-30.....	0	0	7	13	8	21	15	10
	31-36.....	0	0	3	5	6	15	9	6
	37-42.....	0	0	2	4	6	15	8	5
	43 and over.....	0	0	1	2	12	31	13	8
	Total.....	58	100	55	100	39	100	152	100

obtain nurses in this category. In 30 of the hospitals surveyed, practical nurses, supervised in almost all instances by graduate nurses, were employed to assist in the care of hospitalized patients. However, three small hospitals, two in Oklahoma and one in Kentucky, employed no nurses. Even with the utilization of practical nurses to meet the emergency, or alleged emergency, 62 percent of the hospitals, as indicated in table 49, failed to meet the ratio of two beds per nurse.

### Hospital Admissions

As indicative of the service provided by the hospitals observed in the Survey to the mining population, the rate of annual admissions per staff physician has been determined. Although such a measure has recognized limitations, it nevertheless

*Graduate nurse in chart room of modern hospital. The Survey found a serious shortage of graduate and student nurses. Less than half of the hospitals surveyed met or exceeded acceptable ratio of two beds per nurse.*



TABLE 49.—Distribution of hospitals surveyed, by beds per nurse on staff, and by coal-mining area

Hospital beds per nurse	Number of hospitals by coal-mining area with—											
	Graduate nurses				Graduate and student nurses				Total number of nurses <sup>1</sup>			
	Area				Area				Area			
	I	II	III, IV, and V	All	I	II	III, IV, and V	All	I	II	III, IV, and V	All
10.1 and over.....	2	11	8	21	0	10	6	16	0	1	2	3
9.1-10.0.....	0	3	5	8	0	2	4	6	0	2	2	4
8.1-9.0.....	2	2	3	7	0	0	2	2	1	2	1	4
7.1-8.0.....	2	5	3	10	0	5	3	8	0	0	0	0
6.1-7.0.....	4	3	3	10	0	2	1	3	0	1	1	2
5.1-6.0.....	7	4	4	15	0	3	1	4	1	3	1	5
4.1-5.0.....	7	6	6	19	1	3	3	7	3	7	4	14
3.1-4.0.....	18	8	13	39	5	4	10	19	5	8	8	21
2.1-3.0.....	8	0	5	13	9	5	3	17	14	10	16	40
1.1-2.0.....	3	0	4	7	31	7	18	56	27	9	17	53
0.1-1.0.....	0	0	0	0	7	1	3	11	2	0	2	4
Total.....	53	42	54	149	53	42	54	149	53	43	54	150

<sup>1</sup> Includes practical nurses.

NOTE.—No data for 4 hospitals on graduate and student nurses; no data for 3 hospitals on total number of nurses.

provides a broad index by which the relationship of staff physicians and hospitals to patients may be deduced. Information from 142 hospitals, which is presented in table 50, indicates that in 63 percent of the hospitals the annual rate of admissions is less than 150 patients per staff physician. Conversely, in 37 percent of the hospitals, the average staff physician annually treats more than 150 hospital patients.

An average of 300 or more hospital patients is treated each year by the physicians in an impressive percentage of the hospitals. Of these 27 hospitals where annual admissions were reported to exceed 300 per staff physician, 14 have staffs of 5 physicians or less. These hospitals were in the small and medium-size class.

The data obtained by the Survey teams show that, in the Northern Appalachian area, no hospitals have an annual patient-to-staff-physician rate of more than 350; only 5 hospitals, or 10 percent, of those in the area, have a rate between 300 and 350. One of these five hospitals is large, another small, and the remainder medium-size; and only one, a nonprofit institution, administers a prepaid hospitalization plan for the employees of a coal company.

Among hospitals surveyed west of the Appalachian area, 74 percent have an annual patient-per-physician rate of 150 or less. Four hospitals, or 7 percent, present ratios exceeding 400 patients per physician per year. These 4 hospitals each have staffs of 5 or

fewer physicians. One of these four is a small, proprietary hospital in Area III; another is a nonprofit hospital in Area III which is under the auspices of the United Mine Workers of America; a third is a medium-size proprietary hospital in Area IV; and the fourth is a small, nonprofit hospital in Area V. The proprietary hospital in Area IV, and the nonprofit hospital in Area III under the auspices of the United Mine Workers of America, are associated with prepayment hospitalization plans.

In Area II, 30 percent of the hospitals have an annual patient-per-physician ratio of 150 or less per year. Eighteen, or 49 percent, of the hospitals, each having staffs of 15 physicians or less, have annual patient-per-physician ratios over 300. All but 3 of these 18 hospitals with high patient-per-physician ratios are proprietary; and all, with the exception of 1 nonprofit hospital, administer prepaid hospitalization plans. The single nonprofit hospital serves the miners participating in a prepaid hospitalization plan administered by a local union.

### Registration and Approval

Hospitals throughout the United States that desire to be registered with the American Medical Association are required by the Association to comply with certain essentials<sup>4</sup> deemed necessary to provide the sick and the injured with scientific and ethical care.

<sup>4</sup> Work cited in footnote 3.

TABLE 50.—Distribution by patients admitted annually per physician on staffs of hospitals surveyed

Annual admissions per physician	Number of physicians on staff														
	1-5	6-10	11-15	16-20	21-25	26-30	31-40	41-50	51-60	61-80	81-100	101-120	121-140	141 and over	1-141 and over
400 and over.....	12	2	2	0	16	0	0	0	0	0	0	0	0	0	16
350-399.....	2	0	1	0	3	0	0	0	0	0	0	0	0	0	3
300-349.....	0	2	5	1	8	0	0	0	0	0	0	0	0	0	8
250-299.....	4	0	0	1	5	2	0	0	0	0	0	0	0	0	7
200-249.....	4	3	2	0	9	4	1	0	0	0	0	0	0	0	14
150-199.....	2	0	1	1	4	1	0	0	0	0	0	0	0	0	5
100-149.....	6	4	5	4	19	10	4	1	3	0	2	0	2	0	39
50-99.....	2	1	4	4	11	10	6	8	3	1	1	1	3	3	43
1-49.....	0	2	0	0	2	0	0	3	0	2	0	0	0	0	7
Total hospitals.....	32	14	20	11	77	27	11	12	6	3	3	3	3	3	142

Hospitals also may obtain approvals from the American College of Surgeons upon compliance with the minimum standards<sup>6</sup> for hospitals established by that medical organization. Although registration or approval is not necessary for hospitals to continue in operation, very few have not sought the approbation of one or the other, or both, of these leading professional organizations. Only 496<sup>7</sup> hospitals throughout the Nation, having an aggregate bed capacity of less than 1 percent of the beds reported in all the hospitals of the Nation, do not fulfill the requirements for registration of the American Medical Association. Consequently, an analysis has been made of the hospitals that have been visited by the officers of the Medical Survey teams to determine the extent of authoritative but unofficial approval.

The analysis reveals that 16 hospitals or slightly more than 10 percent of the 153 surveyed are neither registered nor approved by the respective medical organizations. Of these 16 hospitals representing 4 percent of the total bed capacity of the visited hospitals, 13 are proprietary, 1 is under the control of a nonprofit association, and 2 are governmental. Six of the unapproved hospitals are in Area II, 4 in Area III, 3 in Area IV, 2 in Area I, and 1 in Area V.

Although the remainder, almost 90 percent of the hospitals, are listed in the registry of the American Medical Association, only 55 percent also have the approval of the American College of Surgeons. From the standpoint of joint approval, the hospitals in Area I are in the lead, as 44 of the 54 hospitals visited in that area have been approved by both organizations. More than 70 percent of all of the nonprofit hospitals surveyed are registered and approved, as compared with less than 35 percent of the proprietary ones that have received joint approval.

### *Licensing by States*

There is a noteworthy lack of laws in the bituminous-coal-mining States providing for the licensing and regulation of hospitals, clinics, and dispensaries. Alabama, Colorado, Illinois, Indiana, Maryland, Ohio, Oklahoma, and Pennsylvania are eight of the coal-producing States having laws (in addition to

maternity hospital regulations) that purport to regulate nongovernmental hospitals of one type or another. Some States limit their laws to maternity hospitals, hospitals for the insane, and other classes rather than to all private hospitals. All of the States, however, that propose to participate in the benefits of the Federal Hospital Survey and Construction Act must, as a prerequisite, enact licensing laws and regulate private hospitals in accordance with standards established by the States.

Colorado, Oklahoma, and Indiana are bituminous-coal States that have laws which require the licensing of all hospitals, dispensaries, and similar institutions for medical care, with relatively few exceptions. The Pennsylvania law exempts from its provisions nonprofit hospitals and maternity hospitals not located in cities of the first or second class and hospitals for the insane.

A much larger number of States have laws relating specifically to maternity hospitals or including them with the category of private hospitals. Indiana and Oklahoma have general regulatory statutes which require the licensing of maternity hospitals; Colorado and Pennsylvania have laws regulating all private hospitals and separate laws regulating maternity hospitals. The following 15 States are among those with laws relating to maternity hospitals: Alabama, Colorado, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Missouri, Ohio, Pennsylvania, Tennessee, Utah, West Virginia, and Virginia.

Some of the requirements for licensing maternity divisions of hospitals require that the general facilities of the building shall pass fire-inspection regulations and meet sanitary-engineering requirements; that, when the number of deliveries exceeds 150 per year, the obstetrical division shall be segregated from all others; and that delivery rooms shall not be used for any other purpose than obstetrics.

Regulations for maternity hospitals furthermore control the type of personnel engaged in obstetrical work, such as the requirement that licensed physicians must be in attendance at all deliveries and that graduate registered nurses must be employed to supervise the care of maternity cases and the nursery.

In addition to Oklahoma and Pennsylvania, a number of States have adopted statutes for regulating hospitals for the insane. Among these are the follow-

<sup>6</sup> Work cited in footnote 2.

<sup>7</sup> Aresand, F. H., and Westmoreland, M. G., *Hospital Service in the United States*, Jour. Am. Med. Assoc., Apr. 20, 1946.

ing bituminous-coal-mining States: Illinois, Iowa, Kansas, Maryland, Michigan, Pennsylvania, Tennessee, and West Virginia. These States require hospitals for the insane to obtain licenses and to be subject to inspection. Authority is generally placed with a State agency which has the power to promulgate rules and regulations and to revoke licenses when the hospitals fail to conform either to the standards

established in the Act or to the regulations issued by the agency.

None of the coal-mining States has any special laws relating to private tuberculosis hospitals and sanatoriums or any special laws with respect to clinics and dispensaries. Such institutions are covered in the general laws of Colorado, Oklahoma, and Pennsylvania.

## DISTRIBUTION OF PHYSICIANS AND HOSPITALS

To reach some indication of the availability of physicians and hospital facilities in areas where miners and their dependents comprise a substantial proportion of the population, data have been assembled for the counties in which mines were surveyed in the Appalachian States. In addition—since medical service transcends county lines—data for counties adjacent to counties containing surveyed mines have been collected, thus extending the study to include relatively large areas within the six principal States of the region—Pennsylvania, West Virginia, Virginia, Kentucky, Tennessee, and Alabama.

On the basis of estimates of numbers of physicians—exclusive of those in Government service—by the American Medical Association, November 1946, together with estimates of population by the United States Bureau of Census, November 1946, a national ratio of 1 physician per 1,000 population in the United States has been derived.

The selected areas exceed the national ratio in only one of the States—Pennsylvania—with a ratio of 1.1; equal the ratio in another State, Tennessee; fall slightly below in two others; and fall by substantial margins in the remaining two.

The distribution of physicians in the 31 selected counties of Pennsylvania, in relation to their population, is fairly uniform. The range in ratios is from 0.5 to 1.6, the highest ratio being in Allegheny County, which includes the metropolitan city of Pittsburgh, the largest medical center in the Northern Appalachians. The range narrows to 0.6 to 1.2 upon exclusion of Allegheny County and the non-coal-mining counties from the selected area and contracts still further to ratios of 0.6 to 1.0 when the

area is confined to those counties employing more than 1,000 miners each. Relatively high ratios are maintained in those counties where miners comprise 30 percent or more of the employed males. (See table 7 in *Launching the Survey*.)

In Tennessee, where the State ratio of physicians to each 1,000 population is 1.0, 2 counties, each containing a large city, exceed this ratio, and the remaining 14 counties fall below the ratio with varying degree. The ratio throughout the selected areas in the State, exclusive of Knox County, in which Knoxville is located and which is not a coal-mining county, and exclusive also of Hamilton County, where Chattanooga is situated, and which is a very small coal producer, ranges between 0.2 and 0.8, with most of the counties close to 0.4. Those counties in the selected area in which mining is conducted to some degree do not show any marked difference in their range or their ratios from those in which no coal mining operations are active. Only 3 counties, all situated adjacent to each other in the northern part of the State, at the junction of Kentucky and Virginia, have mines employing totals of more than 1,000 men each, and these counties have ratios of 0.5, 0.7, and 0.8, among the highest in the selected area. Mine employees comprise more than 30 percent of the employed males in 2 of the counties and about 20 percent in the third.

The situation in Alabama, with a ratio for the State of 0.9 physician per 1,000 population, is similar to that in Tennessee, in that 2 counties equal or exceed the national ratio. These counties are Jefferson, in which Birmingham, a large medical center, is located, and Tuscaloosa, which (in contrast



to Jefferson County) has a low density of population. The remaining 14 counties have ratios ranging from 0.4 to 0.7, with the ratio of 0.5 most common, and there appears to be no notable difference between the coal-mining counties and the others. Exclusive of Jefferson, the largest coal-producing county in the State, only 2 other counties have mines employing 1,000 men or more. These 2 counties, in which the miners happen also to comprise more than 20 percent of the employed men, have ratios of 0.5 and 0.7.

Of the 36 counties in the selected area of West Virginia, 9 equal or exceed the national ratio of 1.0 and thus exceed the State ratio of 0.9. The counties with the highest ratios—1.8 and 1.5—are those containing Wheeling and Charleston, the 2 largest cities in the State. The coal-mining counties, which account for 25 of those in the selected area, have a physician-to-population ratio ranging from 0.3 to 1.1, exclusive of the metropolitan counties, and compare with a range in the remaining counties from 0.2 to 1.0. Six of the 7 counties, excluding the coal-producing metropolitan counties, having a ratio equal to or exceeding the national figure, are coal-mining counties. In the same counties the number of hospital beds in relation to population is greater than in any other county. Although those counties in which the total miners employed exceed 1,000 appear to have a somewhat higher ratio than all other counties in this selected area, those in which the number of mine employees comprise more than 30 percent of all male workers show no marked differences. McDowell County, which has the highest ratio (in the State) of miners to other employed men, has a physician-to-population ratio of 0.8; and 4 other counties, in which more than a majority of the employed males are miners, have a ratio ranging from 0.6 to 1.0.

In terms of availability, the coal-mining counties of West Virginia appear to have a more ample distribution of physicians in the remaining counties and an equivalent distribution if not slightly higher than that observed in Pennsylvania. About one-half of counties in both States are of equal population density, having less than 100 persons per square mile, and within these counties the distribution of physicians is equal. With the exception of Allegheny County, Pa., and Ohio County, W. Va., the remain-

ing coal counties studied in both States have a population density of 100 to 400 persons per square mile; within this group of counties, the distribution of physicians in West Virginia is higher than in Pennsylvania.

Each of the selected areas of Kentucky and Virginia included in the study has an average ratio of 0.6 physician to each 1,000 of population. Both southeastern Kentucky and southwestern Virginia are characterized by low density of population, the majority of the counties in these sections of the States having an average of less than 100 persons per square mile. In this respect, these areas are similar to the coal-mining counties of Tennessee. In Kentucky the coal-mining counties have a higher population density than the remaining counties in the selected area. The range of ratio in Kentucky is from 0.1 to 0.9, with 8 of the 17 counties having a ratio of less than 0.5. In Virginia the range in ratios is from 0.3 to 1.0, with 3 of the 9 counties having a ratio of less than 0.5. In only 3 of the Virginia counties studied does the estimated number of miners exceed 1,000, and in these counties the ratios are 0.3, 0.6, and 0.8. In Kentucky the major coal-producing counties have a higher ratio than the smaller producing counties or the noncoal county. In Kentucky the farther the counties are removed from the highly productive coal ridges separating the State from Virginia, the lower the ratios appear to become. Bell County, with a ratio of 0.8, leads the major coal-producing counties.

It is evident that, within the Appalachian coal areas and adjoining county areas, the distribution of physicians varies considerably. In West Virginia and Pennsylvania the distribution of physicians appears to be far more favorable (particularly in coal-mining counties) than in the remaining States of Virginia, Kentucky, Alabama, and Tennessee, where the distribution of physicians is below the national average and the density of population in the counties is considerably lower than in West Virginia and Pennsylvania. It is evident also that, in areas where the physician ratio and the density of the population are low, availability of physicians is decidedly limited. This may well indicate a limited amount of medical care, and, deductively, a lack of proper medical service. Observations



*Miner under treatment for leg injury in fracture bed of hospital. The medical care of industrial injuries is a responsibility of the employer in all bituminous-coal-mining States. Hospital care for nonindustrial injuries is provided primarily through prepaid hospitalization plans.*

made throughout the Survey in portions of Kentucky, Tennessee, West Virginia, and Virginia indicate that the mining population in many of the southern areas may have a slightly greater availability of medical services than non-coal-mining populations. Physicians have been observed, in a number of instances, living within coal-mining communities in which the coal-mining population is concentrated in a single camp. Other instances have been observed in which one physician may serve a number of mining

communities relatively close together along a main highway in a mountain valley. Thus, although the general distribution of physicians may be low, the distribution of physicians in the mining segments may be relatively higher. The presence of physicians in direct relationship to coal-mining population is attributable to prepaid medical care. It is worthy of note that, within the entire Survey, 96 percent of the mines were within 5 miles of a physician's office. This indicates that, in the southern

areas, although physicians may be limited in number, nevertheless they are at least relatively close to the mines.

## *Hospital Beds*

In the same selected areas of the several States that were analyzed with respect to the distribution of physicians, a brief analysis has been made of the geographic spread of hospitals. The data on hospitals have been viewed in the light of the goal set in the Federal Hospital Survey and Construction Act of 4.5 hospital beds per 1,000 population.

The data reveal that only 3 of the 31 counties in Pennsylvania meet or exceed this mark. Three other counties have no hospitals. In West Virginia,

11 of the 36 counties comprising the selected area have no beds registered, and of the remaining 25 counties, only 3 counties exceeded the ratio of 4.5. These 3 counties that exceeded the ratio and 5 of those that have no beds at all are coal-mining counties. In the area studied in Virginia, Tennessee, and Kentucky, none of the counties has enough hospital beds to meet the goal set in the Hospital Survey and Construction Act. In Alabama only 1 county showed a ratio higher than 4.5 beds per 1,000 population.

Within the selected areas of the 6 Appalachian States, no hospital beds are registered for more than half the counties. Thus, in the total of 125 counties, there are only 8 with ratios equaling or exceeding the ratio of 4.5. These 8 counties, except for 1 in Alabama, are in Pennsylvania and West Virginia.

## DISCUSSION

In the study of 153 hospitals which are utilized by employees (and their dependents) of 260 surveyed mines, notable variations were found among the different coal-mining areas with respect to the professional and technical staffs of hospitals and in the size, distribution, and characteristics of the hospital facilities. In the absence of clearly defined standards of measurement that have been accepted, or established, by official bodies and associations within the medical profession, only quantitative comparisons can be made with objectivity. On the basis of numerical deficiencies, or absence of essential physical facilities and of available personnel, deductions as to the quality and character of the medical service available to miners and their families can be made readily.

From the data presented on preceding pages, it is apparent that coal miners depend primarily for hospital services on institutions of small or medium size—that is, those with a capacity of less than 150 beds. Large hospitals are serving only 37 percent of the mines surveyed.

It is estimated that less than 20 percent of the mines are served by hospitals characteristic of those in metropolitan centers, such as Pittsburgh or St. Louis.

The evidence is convincing that three-fourths of the hospitals are inadequate with regard to one or more of the following: Surgical rooms, delivery rooms, labor rooms and nurseries, clinical laboratories, and X-ray facilities.

Seventeen percent of the hospitals in the Northern Appalachian area, 35 percent in Area II, and 34 percent in Areas III, IV, and V combined have an insufficiency of operating rooms. The great majority of those hospitals are small or of medium size. This shortcoming is particularly apparent in the Southern Appalachian area. Also, inadequacy of delivery rooms was most common in Area II, where almost a third of the hospitals accepting maternity cases had no room set apart for obstetrics, and an additional 26 percent of hospitals of sufficient size to warrant 2 delivery rooms had only 1 each. Hospitals in Area I reveal almost as great a degree of insufficiency. The least inadequate of the surveyed hospitals were those in Area III.

Seventy four percent of the hospitals surveyed in Area II provided no labor room. In each of the other areas, about two-thirds of the hospitals have labor rooms. However, with respect to nurseries, more than four-fifths of all of the hospitals in each area are so equipped.

Ten percent of hospitals in the Northern Appalachian area, 16 percent in the Southern Appalachian area, and slightly higher percentages of hospitals in the area west of the Mississippi either did not maintain laboratory facilities or were insufficiently equipped to render proper clinical laboratory assistance. These deficiencies were noted most commonly among small and medium-size hospitals.

Of the hospitals observed in the Northern Appalachian area, more than half had staffs of more than 20 physicians; in contrast, approximately 80 percent of the hospitals in the Southern Appalachian area had staffs of less than 20 physicians, and 56 percent of the hospitals had 8 or fewer physicians. Practically all of the hospitals having small staffs are small or medium-size proprietary hospitals. In the western areas, approximately half of the hospital staffs have 20 physicians or more. The small, closed staff is characteristic of the proprietary hospital, as observed in this Survey. In those areas where the nonprofit hospital associations exist or predominate, more ample hospital staffs are observed.

Although there are areas in the coal-mining industry where the ratio of physicians to population is low owing to interrelated factors of population density and economic levels, another factor exists in some areas that may be a serious limiting factor upon the distribution of physicians. That is the lack of opportunity for professional advancement that results when physicians are denied the opportunity of utilizing hospital facilities. It is commonly accepted that, where a patient is to receive the best care, a certain proportion of such care must be provided by specialists; and that, if a hospital is to give adequate medical care, specialty care should be available. Of the specialist services, three major specialties are considered, namely, medicine, surgery, and obstetrics. Ninety percent of the hospitals observed in the Northern Appalachian area are staffed to provide specialists' care in surgery and internal medicine, and two-thirds of these hospitals have obstetricians on their staffs. On the other hand, approximately one-third of the hospitals in the Southern Appalachian area have no surgical specialists; less than half have internists; and less than half have obstetricians. The proportions are even lower among the hospitals observed in the other Areas. The extremes were

observed in Area V (Rocky Mountain States and the far West) where approximately 67 percent of surveyed hospitals have no physicians specializing in surgery, internal medicine, or obstetrics.

In those areas and in those hospitals where adequate facilities and adequate care are provided, it was generally observed that physicians have accepted a challenge and responsibility in developing their professional skills. In such development, they are afforded an opportunity, through continuous study and education, to attain a higher degree of competency. Most important, however, is the demand for adequate facilities to meet the needs in caring for the sick and injured.

The lack of attention to the specialties in the coal-mining areas, combined with unmistakable evidence of inadequate facilities, indicates that in some coal-mining areas—particularly in sections of Area II—the medical profession lacks a progressive attitude. The absence of delivery rooms, forcing the use of the surgical operating rooms for obstetrics, and deficiencies in nursing services constitute further striking evidence. Improper provisions for the hospital patients' safety in case of fire also indicate an indifferent attitude.

Such attitudes appear to be most prevalent in areas where the present system of contract hospitalization—a system that stifles competition on the basis of quality of service—is dominant. There is urgent need that the existing attitudes be liberalized by the medical profession in some coal-mining areas and that the existing facilities be expanded to provide adequate means with which to render service.

The Hospital Survey and Construction Act provides means whereby hospital facilities may be improved and expanded. It is considered imperative that the several coal-mining States, in which inadequacies have been observed and a deficiency of hospital beds exists, immediately assume initiative and provide the leadership and authority within which the hospital facilities of the areas of the States may be increased. It is considered feasible that the United Mine Workers of America, who have an active interest in the problem of medical care, assume responsibility as an organized group and sponsor and encourage public support of the Hospital Survey and Construction Act.

There is apparent within the Southern Appalachian area a noticeable deficiency in the total number of physicians practicing within the area. Of particular importance is the deficiency in the number of young physicians. Accepting the premise that the patient-load carried by a physician is reduced as the physician advances in age, the patient-load that can be accommodated is reduced further where there is an increased proportion of older physicians in an area. To relieve this problem, the young physician must be induced to enter the area and establish his practice.

A primary barrier to young physicians is medical monopolies similar to those which tend to emerge in the coal-mining areas, especially where proprietary hospitals with closed staffs predominate. The medical profession should develop and foster opportunities for young physicians to enter these regions under conditions that will permit them to advance professionally and financially.

In the interest of proper medical care, the medical

profession should closely scrutinize the present methods of practice in the coal-mining areas and make modifications wherever necessary to provide adequate diagnostic services and treatment facilities, and enough fully qualified physicians to handle the needs of the regions.

Unfortunately, the general public is ill-informed concerning the fundamentals of good medical care. The miners, possibly more than other groups, require a better understanding of the features that constitute an acceptable hospital and of the essentials to seek in determining capable, scientific, and ethical medical practice. The United Mine Workers of America, assisted by the medical profession, can perform a valuable service by acquainting its members with the facts that will enable them to make adequate appraisals of medical and hospital service. In this way, the coal-mining population will be better able to assume responsibilities that will act as a force to improve the quality of medical and hospital service in the bituminous-coal-mining areas of the Nation.

## Off-the-Job Living



Leisure time for "off-the-job living" is being provided more rapidly than any other single item in America. How are two million bituminous-coal miners and their dependents using it?

To answer this question, the Navy welfare and recreation officers of the Medical Survey Group gathered facts on the off-the-job living of the miner and his family from official records, by interview, and by observation. These officers went into the homes of miners and into the schools, churches and places of recreation in the coal camps and the rural communities and cities adjacent to them. In this section of the study, some of the 260 mines surveyed frequently were served by as many as 4 separate communities. It was inversely true also

that several mines surveyed were served by the same community. Thus, the communities referred to in this section of the report total 257 and are not necessarily identical with the 260 mines reported elsewhere in the Survey. Where a community, in which the houses are owned or controlled by the mine operator, was established at the mine it is referred to here as a coal camp. Of the 257 communities studied, 116 are coal camps.

In every instance representatives of Management and Labor were interviewed. Facts on recreation were solicited of State, county, and local officials, school teachers, children, clergymen, housewives, and the miners themselves.

For purposes of comparison, a brief study was



*No place to go—nothing to do.*

made of several plants in other industries with respect to their activities designed to foster better employee relations. Many companies in industry and commerce have for some time carried on comprehensive recreational programs definitely designed to enrich the lives of employees and their families. Progressive Management is aware that it is good policy to help people protect the things they care about. Such attitudes and policies, these companies contend, result in improved Labor-Management relations, reduction in absenteeism and labor turnover, and improved safety records. The existence in several industries of such programs and services, undertaken on a collaborative basis, with employees and employers cooperating over a period of years, indicates that it is a beneficial venture for both groups.

Off-the-job living includes all the things the individual chooses to do in his own time for gratification of the doing. That these things shall be socially

acceptable goes without saying. Free time—choice—gratification in the doing—dignity of the individual—these are the watchwords.

Recreation plays a significant role in everyone's life. All individuals have some time that belongs to them alone, time they may call their own—the earned leisure of the adult, the rightful possession of all youth. Moreover, it is of jealous concern to society and of paramount importance to the individual that this leisure time be used in wholesome, constructive, and developmental activity nurturing the mental and emotional, as well as the physical, processes.

What the individual does in his own time has a great deal to do with shaping his personality and coloring his attitudes. It is in one's own time that much of character is molded. This earned leisure is a period during which an individual may discover talents, satisfy a variety of appetites, give outlet and vitality to interests, sharpen skills, and develop

appreciations. Democracy says to each of us, "You are an individual with a name and a personality—you are not simply a number on a file card. You differ, however slightly, from all those about you. You have talents and yearnings of your own. Discover yourself. Be yourself. It is your duty to develop as an individual and to improve your worth to the group."

This is where recreation comes in, for recreation is a means of satisfying human hungers for self-expression and creativeness, for belonging to the group and being wanted, and for recognition, competition, and adventure.

Satisfaction of these desires and needs takes on an urgency when it is remembered that this is not an ordinary period of years. Emotional tensions, accentuated by a terrible war, emphasize the need for release and for calm and quiet meditation, to balance living and to bring life into better focus. Recreation helps to provide some of these essentials of balance. It provides opportunity to live as integrated human beings for those who are slaves of machines, whether in factories or farms, in mines, in offices, or in highly specialized businesses or professions—or even slaves to the drudgery of the household.

In this mechanical, gadget-worshipping age when the magic of man's inventions and scientific achievement has dwarfed and fractionalized the worktime of the individual and has even tended to mechanize his philosophy; in an era that points to a shortened week; in an age of regimentation and standardization threatening to rob people of creative experience, recreation assumes transcendent importance among those forces that can prevent people from becoming mechanical robots and leisure-time illiterates.

To the Nation, the total leisure time of its citizens can be its greatest asset or a terrifying liability. In the bituminous-coal industry, employing 400,000 miners, it has been estimated that approximately half of the waking hours of each miner are leisure hours—time in which he is released from his work chores, and compulsory tasks, and is free to do things of his own choosing. Hence, the miners of America, exclusive of their dependents, have a huge total of leisure hours—hundreds of millions—each year.

The activities undertaken throughout the United States to provide outlets for the leisure time of the people have resulted in the establishment of many agencies, public and private, to provide facilities and leadership for wholesome recreation. Moreover, there is a vast commercial amusement industry. In place after place throughout the country, commercial enterprise has established theaters, bowling alleys, swimming pools, camps, schools of arts and handicrafts, and similar places; and organized agencies, public and private, have added parks, swimming pools, club houses, and thousands of other facilities to supplement those supplied by private capital or to provide facilities where private capital has not dared to venture. Thus, in large cities and smaller urban centers, and even in rural areas, recreational opportunities have been, and are constantly being, created. State and local governments, school districts, civic organizations, churches, and private fraternal organizations have attempted to satisfy are recognized public need.

In the coal-mining areas of the Nation, however, the circumstances in many instances seriously circumscribe the abilities of either public or private agencies, or those of commercial firms. Conditions in company-owned communities especially present serious problems. Because so many of them are relatively sparsely settled, as compared with urban centers, and because the working time and corresponding earnings of the inhabitants are so irregular and undependable, commercial firms are cautious in establishing permanent facilities, such as motion-picture theaters. Because the land in those places is owned or leased by mine operators, and therefore is neither public property nor generally available for lease or purchase by residents of the community, public facilities depend upon the largesse of the operators. Moreover, because these places, with few exceptions, are unincorporated, there are no public bodies, such as city councils, to provide recreational opportunities for the residents.

Finally, the adequate use of leisure time depends upon leadership, as well as facilities and programs. Consequently, the people in coal-mining camps, lacking their own organization, depend for a large measure of their recreational opportunities on four





*In the many coal camps which are not situated close to urban centers, the major recreational pursuit is just sitting and talking. Miners and their families visit their neighbors; or the men, with many hours and days each year of enforced idleness, frequently "hang around" the company store which is another popular meeting place.*

primary sources—Management, Labor, the school officials, and the church leaders.

Where coal miners live in or near cities—Pittsburgh, Pa., Springfield, Ill., Des Moines, Iowa, Denver, Colo., Seattle, Wash., Birmingham, Ala., Wheeling, W. Va., and Knoxville, Tenn.—they are absorbed into the diversified pattern of the life in such large communities. Those who live in incorporated towns such as Harlan, Ky., Logan, W. Va., or Price, Utah, which are adjacent to numbers of soft-coal mines and depend for their sustenance on mining operations, the public and private organizations and commercial enterprises exist to handle their wants. But even here a large share of their needs are unmet.

Other miners scattered over rural areas, who mine

coal part of the time and devote the rest of their energies to farming, and those who live in the company-owned "coal camps" enjoy few of the facilities available to people living in cities. Beauty parlors, telephones, laundries, daily papers, drug stores, and movies—all commonplace to the urbanite—are seldom available to them.

Miners and their families who live in coal camps must deal with the operator at every turn. The operator is his boss while at work. The operator is his landlord and, at the company store, his grocer, his butcher, his shoe salesman. Always miner and operator are on opposing sides in their daily transactions. Consequently, it is inevitable that honest differences of opinion, strained relations, and conflicts will arise from time to time.

This group is isolated from the main stream of life flowing through a normal, diversified community. This isolation—like a leash—imposes restrictions on recreational opportunities and limits experience, with the result that social adjustments become difficult and leisure time is employed to magnify grievances.

Coal camps are generally one-industry communities. When the mine closes, other local jobs are rarely available. Hence, the miners have unwanted free time that cannot be employed constructively. Leisure then becomes a burden.

Absenteeism, plus enforced idleness, regardless of reasons, eats deeply into earned income. Yet, even during periods of steady employment, there is no evidence of any encouragement to save or invest earnings. Banks, the physical presence of which

would suggest saving, systematic or otherwise are rarely established in coal camps.

Company-owned coal camps were associated with approximately 45 percent of the mines surveyed. Except in a few instances, these camps consisted of the mine, the houses, an elementary school, a company store, and one or two churches. Most of them are bleak and uninspiring.

Topography imposes certain limitations regarding the establishment of facilities in many coal camps. Level ground for roads, housing, and schools is at a premium. Just as houses are huddled together and often cling to the side of a hill, the schoolhouse may be on a steep hillside or be tucked alongside the railroad spur at the bottom of the hollow. Youngsters of the streets of New York and Chicago dodge flying taxicabs and trucks, but children in coal camps fre-



*Just as children in the city learn to dodge automobiles and trucks, the youngsters in coal-mining communities at an early age acquire an agility to dodge freight trains. The railroad track is a highway and a playground in many coal camps.*

quently dodge chugging engines and heavily loaded coal cars. Hilly country offers little, if any, outdoor space for athletic fields. Roads are narrow and winding. The self-esteem and pride usually associated with permanent residence and home ownership often are missing.

The miner and his family were asked where they could go to a dance, a movie, a bowling alley, a gymnasium, a tavern, a restaurant, or a skating rink. Did they patronize one or another of them? When the answer was "yes," the facility was recorded as being available and used by the residents of the camp, even though it might be as much as 30 miles distant.

The starting hour in coal mines is relatively early, compared with the starting time in most manufacturing industries. Many mines begin the first shift as early as 6:30 or 7 o'clock in the morning. For a miner to change clothes and ride in with the man-trip, he must rise at an unusually early hour and consequently go to bed early the night before a

workday. Thus, his leisure time is centered mainly between midafternoon and evening. He, therefore, is cut off from amusements and other recreational pursuits geared to the working hours of most other workers. Many of the best radio programs, for example, are broadcast after the miner has gone to bed. If he wishes to go to a town to see a movie, he must sacrifice some of his regular sleeping hours.

For the smaller number of miners who work the second or third shift, family life is even more seriously disrupted. The housewife struggling all day—washing and ironing, fighting the endless battle against dirt and soot, feeding and caring for her children and a husband—must indeed reach the stage of endless exhaustion.

There is also the problem of keeping the children quiet during the day in order that father may sleep. Arising wearily from bed in the middle of the night to prepare a substantial meal for the father, hungry at the end of a night shift, adds nothing to her com-

*Picnics and family reunions are a popular recreational outlet in the coal-mining regions, just as they are in most rural areas.*



fort. This constant drain on physical energy can result only in serious faults in manners, attitude, and tone in the home. Drabness and dullness dominate. Like a tiring marathon runner staggering toward a

far-away finish line, the housewife tries, with dwindling energy, to keep abreast of everyday chores and thus has little reserve to call upon in the final sprint necessary to raise the standard of life in her home.

## RECREATIONAL PROGRAMS

Even more important than physical facilities to the off-the-job living of the miner are programs of recreation. The finest sports center has little value if people do not use it. Conversely, worth-while activities can be carried on in old barns, church basements, and empty lots. Continuous activity programs, however, rarely spring spontaneously from groups of people. Leadership is a prime necessity in initiating, developing, and carrying through a well-rounded, continuous, recreational program by uncovering and stimulating the major interests of the people. Where leadership is exercised the facilities do not follow far behind. In coal-mining communities, particularly in isolated camps, leadership

generally stems from the initiative of Management, Labor, the church, or the school. Each, however, can develop merely a fractional program, which can satisfy only part of the needs of the people in the community. Cooperation between two or more of these is necessary, even where participation by the people is forthcoming. Only in very few instances has such cooperation been developed to the point where leadership and participation by all groups have resulted in programs approaching adequacy. In a number of instances, however, the initiative taken by one or two of the leadership sources has resulted in activity programs of merit.

Both Management and Labor have been distinctly

TABLE 51.—*Distribution of recreation facilities, by ownership, in 257 communities*

Facility	Ownership							Communities with none
	Operator	Union	Public	Private	Commercial	School	Church	
Auditorium.....	30	17	36	20	7	172	72	67
Athletic field.....	69	2	69	24	11	125	3	68
Bowling.....	3	0	0	12	80	0	1	169
Community center.....	31	6	28	8	1	38	16	164
Dancing.....	11	4	24	57	83	95	21	94
Gymnasium.....	2	1	6	9	3	161	6	86
Golf.....	5	1	27	60	17	0	0	167
Library.....	9	1	90	3	8	190	5	34
Pool—billiards.....	12	1	7	22	144	2	2	98
Park.....	14	1	78	3	9	6	0	158
Picnic area.....	36	0	83	9	16	6	4	111
Movies.....	13	0	5	22	186	72	7	45
Restaurant.....	24	0	2	19	165	1	0	64
Skating.....	1	0	21	13	44	1	0	189
Swimming.....	13	3	32	19	32	7	1	159
Tennis.....	12	0	35	22	4	33	0	166
Playground.....	19	0	66	7	4	100	8	111
Hunting area.....	49	1	188	45	10	7	0	28
Fishing area.....	47	1	171	47	10	1	0	45
Shower.....	33	2	10	26	28	129	6	90
Tavern.....	8	0	0	54	154	0	0	85

NOTE.—Each figure indicates the number of communities in which a particular type of facility was present under a specific category of ownership. If more than 1 facility of a particular type, under 1 sponsorship or ownership, was noted, only 1 facility was recorded in order to show that at least 1 facility of that type was available to miners in the community under that ownership. Thus the distribution indicated in the table is not mutually exclusive.



*A few of the larger and better camps have swimming pools like this, as well as supervised playgrounds, bowling alleys, billiard rooms, and other recreational facilities. In the large majority, however, adequate swimming facilities are not provided.*

remiss in helping to make the miner's off-the-job hours a time of gainful leisure. The coal companies, for the most part, do not appreciate the indirect economic advantage to be gained by taking an interest in what their employees do during off hours, even though their control of the operations and of the community places the primary obligation upon them. Likewise, organized Labor gives little evidence of acknowledging that recreation will benefit its membership.

### *Leadership of Operators*

Personnel executives in eight large manufacturing plants<sup>1</sup> were asked, "Why do you provide supervised recreation for your employees?" All of them replied,

<sup>1</sup> Plants manufacturing rubber goods, chemicals, glass, heavy machinery, business machines, and textiles.

"It is good business." If it is good business in the chemical and rubber industries, it should be the same in coal; but most of the coal operators do not appear to agree.

A certain coal company operates a summer camp for the children of its employees. One of the miners decided to move and work for another company, but his wife balked when she learned that the other mine would not offer camping privileges similar to those that their son enjoyed each season. Consequently, the miner did not change jobs, illustrating the benefits to the company in reduced labor turn-over when a desirable welfare feature was provided.

A full-time recreation director hired by Management is available in only four of the settlements surveyed. Many of the coal camps include struc-

tures and space which could readily be transformed into attractive play centers, at little expense, if some leadership was provided. Thousands of war veterans are returning to their old jobs in the pits far more appreciative of the importance of leadership and supervision, as the result of their military experience. One former sailor said that his destroyer had more recreational opportunities than the entire community in which he lives.

Of the four recreation directors employed by operators, found by the Survey teams, two are in West Virginia, one in Kentucky, and one in Alabama. One of the two in West Virginia must necessarily spread his services quite thin, since he is working in eight different communities for a like number of operators who combined to share the expense.

Although one-third of the settlements canvassed have bowling alleys, Management is active in sponsoring bowling leagues in only 3. In but 23 communities are there company-sponsored baseball teams. While 36 picnic grounds were provided by operators, only 18 of the operators sponsored picnics.

The operators have provided 11 dance halls, but only 8 company-sponsored dances were found.

A distressing observation was that the interest of Management in recreational activities was said to decrease sharply in some camps after the miners were organized into a union. Whether this resulted from vindictiveness of Management or feeling that the Union should now take over this responsibility is unknown. A happy contrast is presented by a certain Alabama coal camp, fully unionized, where the operator provides a full-time recreation director and offers his workers facilities for swimming, fishing, and field sports and a children's playground. Also worthy of mention are: a mining settlement in West Virginia, with its tastefully furnished country club, library, and community center with outdoor pool; a community in Pennsylvania where the operator has made available an athletic field, a social center, and a park; and a Wyoming camp with company-sponsored bowling alleys, dance floors, and other recreational conveniences. Company labor difficulties at these camps are purported to be few and far between, in

*Although one-third of the settlements that were canvassed have bowling alleys, Management was active, during the Survey, in sponsoring bowling leagues in only three communities.*



TABLE 52.—Distribution of recreation programs in communities, by sponsorship of programs

Programs	Sponsorship					
	Com- mercial	Com- munity	Union	Opera- tor	Church	School
<b>GAMES AND SPORTS</b>						
Baseball.....	13	129	6	23	4	144
Softball.....	5	65	4	13	13	134
Basketball.....	2	64	4	8	15	190
Football.....	3	16	1	1	0	126
Wrestling.....	4	5	0	0	0	22
Boxing.....	3	8	0	0	0	30
Soccer.....	0	3	0	1	0	22
Horsehoes.....	2	25	2	8	6	22
Swimming.....	24	20	0	5	2	11
Bowling.....	51	6	1	3	3	7
Golf.....	12	19	1	1	0	9
Skating.....	26	14	0	0	2	5
<b>MUSIC</b>						
Band.....	1	28	2	1	3	143
Orchestra.....	4	11	2	1	12	85
Choral.....	0	13	0	0	87	125
Concerts.....	2	24	1	1	34	109
<b>DRAMA</b>						
Festivals.....	0	33	7	10	45	120
Plays.....	2	14	3	7	45	193
Story telling.....	1	6	0	4	6	81
<b>ARTS—CRAFTS</b>						
Manual.....	1	7	1	1	6	107
Decorative.....	1	5	1	1	6	98
Hobbies.....	0	11	2	5	11	93
<b>SOCIAL</b>						
Picnics.....	7	66	23	18	111	138
Parties.....	9	64	15	12	90	147
Dances.....	56	79	11	8	26	139
Celebrations.....	10	88	15	10	49	106
Movies.....	159	20	2	5	13	106
<b>NATURE</b>						
Gardens.....	2	64	5	16	5	18
Camping.....	4	36	1	6	26	31
Hiking.....	0	33	1	3	23	33
Fishing.....	9	65	6	12	2	15
Hunting.....	7	68	7	10	2	14
Horseback riding.....	14	9	1	3	0	0

NOTE.—Each figure represents the number of communities in which program opportunities occurred, under specific type of sponsorship. If more than 1 program of a particular type, under 1 sponsorship or ownership, was noted, only 1 program was recorded in order to show that at least 1 program of that type was available to miners in the community under that sponsorship. Thus, the distribution indicated in the table is not mutually exclusive.

comparison with those of certain other neighboring camps where operators manifest less interest in their workers' off-the-job activities.

### Activities of Unions

In only 62 communities out of the 257 surveyed were union locals found to be active in supporting or sponsoring recreational activities. Six communities boasted union-sponsored baseball teams. Dances under similar auspices are conducted in 11 of the 257. Nowhere in the entire study was the Union found to be providing for a paid, full-time recreation leader.

In Area II, comprising Alabama, Tennessee, Kentucky, Virginia, and southern West Virginia, 87 of the 108 communities surveyed are company camps. Local unions concern themselves with recreation in 27 of these 87 communities.

A union local in Kentucky furnishes the voluntary leadership and the money to sponsor a baseball team. Another, in West Virginia, dipped into its treasury to build an athletic field for the high school; as a result, the miners and their families are regular spectators at scholastic contests. These are among the few exceptions to the rule. The local union, it was found, donates money for recreational activities in 41 of the 257 communities studied.

Union officials are not loath to discuss shortcomings in their respective areas; but investigation disclosed that the organization, being geared primarily to handle "grievances" and situations arising out of conflicts over wages, working hours, working conditions, and related matters, seldom worked to improve the recreational opportunities of the miners. Gardening receives union assistance and encouragement in only 5 communities out of 257 communities in the Survey. Eleven communities (less than 5 percent) have organized hobby clubs. Conversations with miners frequently elicited the reply that they would be eager to join hobby clubs if established.

### Role of Schools

In table 52, schools are shown to lead churches, public and private agencies, clubs, and other organizations in promoting recreation. Information concerning the schools was obtained from superintendents of schools, teachers, students and civic



*The schools that miners' children attend vary in character according to the geographic location of the mines. In the rural coal camps the grade schools are typical of country schools—in some instances, where the camps are isolated, even consisting of the old-fashioned, little, one-room schoolhouse. In other areas the more common consolidated school prevails.*

leaders. It was not the intent to study or evaluate the quality of education dispensed but, instead, to find what degree school properties and personnel are utilized, in extracurricular fashion, for the benefit of adults as well as children. In many camps, a one-room schoolhouse is the hub of the community's social life. The larger the school, the more varied are its uses, which may include instruction of adults as well as children in cooking, sewing, reading, and music appreciation; club meetings; and—if the school has a gymnasium—basketball and other indoor sports. A young athletic coach, lately a member of the United States Marine Corps, did a notable job in one community, where he initiated and finally succeeded in obtaining a good athletic field adjacent to the school. The same young man

introduced sports programs not only for pupils but also for their elders, resulting in maximum utilization of its school by the community.

In only 100 of the 257 communities do the schools have adjoining playgrounds, and the largest proportion are found west of the Alleghenies. Although the hilly terrain of West Virginia, Kentucky, and the bituminous regions of Pennsylvania is not as favorable for the construction of playgrounds as are the tablelands of the West, some enterprising localities in the Appalachians, both north and south, have nevertheless altered Nature with bulldozers and mechanical shovels to provide athletic fields in the vicinity of school buildings.

On the other hand, many playgrounds were noted where seesaws, swings, and horizontal bars were



rusting from disuse. It was also common to see school auditoriums that were never opened on evenings and holidays or during the summer vacation months. Although they might have provided ideal places for meetings or socials, they remained idle for want of initiative. Thus, good facilities and equipment frequently were utilized only to a minimum because the important ingredients—supervision and direction—were altogether lacking.

In nearly every instance where a school is contributing to a company camp's livability, it will be found that some conscientious teacher is the "spark plug" who is stimulating the miners and their families to make the most out of what little recreational facilities they have. Such teachers are active in organizing 4-H Clubs, parent-teacher associations, and Boy and Girl Scout troops. Unfortunately, there are too few teachers of this type, because low pay and unattractive environment have driven many into other occupations or into the better-salaried positions offered by city schools. Even when teaching in coal camps, they prefer to live in the nearest

incorporated town, when possible, and if they do, further limitation is placed on the time they can spend in extra-curricular activities at the camp.

In one mining town in western Pennsylvania, teachers struck for higher wages. Some of them were receiving take-home pay of \$24 a week, only \$4 more than the maximum unemployment compensation payable in the State to workers in time of unemployment (not resulting from strikes). A teacher in an eastern Ohio mining community disclosed that on her \$30 weekly salary, paid for 9 months of the year, she must double as janitor in a one-room schoolhouse, which accommodates all eight elementary grades. Frequently, she buys needed school-room equipment from her meager wages. Nevertheless, she cheerfully volunteers two nights a week to conduct cultural classes for the parents of her pupils, receiving no additional compensation. It is common for teachers to take other jobs in order to supplement their earnings. In one mining town, two principals—one white and the other Negro—said that only by working in the mines during the

*Schools lead all other organizations in promoting recreation, not only for children but for adults as well. Leadership and supervision can do much with limited facilities, but teachers are rapidly losing their enthusiasm for extra-curricular activities.*





*In only 100 of 257 coal-mining communities surveyed do the schools have adjoining playgrounds, and most of these are west of the Alleghenies. Many of these playgrounds, however, are not used when schools are not in session, and direction and supervision are consequently lacking.*

summer vacation period can they afford to continue their chosen profession. As coal diggers, they received much higher wages than as teachers.

Under such circumstances, it should hardly cause surprise that community leadership among teachers is missing; consequently, 59 of the communities surveyed do not utilize school buildings for the benefit of everyone, although a sizable proportion of these schools have auditoriums and gymnasiums. Interested leaders are all that is needed to convert them into community centers.

### *Recreation and the Church*

The church, like the school, is expected by tradition to contribute to enrichment of living within a community. Particularly in a closely knit settlement, such as a company camp or a mining town, the church building may be used more than 1 day a

week. Denominations and creeds were not a concern of the Survey, nor whether the men who mine coal are "religious" people. An attempt was made to learn, however, how large the church looms in each community as an instrument of social, as well as spiritual, welfare.

If the tippie signifies the presence of a mine, a church and a company store signify the existence of a camp. A church is one of the first structures erected when a coal-mining community with housing is established. Of the 257 communities visited in connection with the recreational aspects of the Survey, all but a few camps have at least 1 church each or a church within reasonable traveling distance. Altogether, 1,672 churches were recorded, of which 1,405 were for the use of various Protestant denominations; 227 for the Greek and Roman Catholic faiths; and 40 for people of other faiths, or nondenominational. Of the Protestant churches, 193 served



*Churches, found in nearly all coal mining communities, vary in construction from the simplest wooden building to elaborate brick or stone structures.*

Negroes, and of the Catholic churches, 2 were for Negroes.

Of the church buildings in coal camps an appreciable number have been erected by the operators. In many such instances where the operators have built the churches, they also maintain repairs and contribute coal and utilities.

Churches in coal camps vary in construction from the simplest wooden buildings to elaborate brick or stone structures. The most common type is a one-story wooden building with basement. The interior furnishings likewise vary from a collection of folding chairs and a reading stand to elaborate pulpits and hand-decorated pews. Where church buildings are lacking or where a particular sect does not wish to use the existing church, divine services are held in schoolhouses, miners' homes, or whatever shelter is available. In the few camps that lack a church building or in those where the church is a considerable distance from the homes of many employees, the company may provide bus service or the congrega-

tion may hire a commercial vehicle to transport its members on Sundays.

Church services are not held with the same frequency in all communities. In the smaller camps, particularly, the residents must depend for their spiritual guidance upon part-time preachers and circuit-riding clergymen, who appear at regular but infrequent intervals. To maintain full-time pastors, it is not uncommon to find operators contributing toward their salaries and in a few instances paying the entire amount. Generally, however, the largest part of the burden is borne by the miners themselves. Scores of communities are doing the best they can to preserve their congregations, with lay members conducting prayers and attempting to fill the diversified role which is the minister's in a small village. Altogether, a little more than two-thirds of all the settlements surveyed in 22 States have 1 or more full-time clergymen.

The Survey revealed that leadership in encouraging and stimulating recreational activities was under-



*Churches are prominent in encouraging and stimulating recreational activities in many coal-mining communities. Choral groups are especially popular among the Negro miners and their families.*

taken by churches in 176 of the surveyed communities.

In about a third of the communities clergymen have been inactive in promoting recreational activities in coal camps. Many of these men are so poorly paid and so overburdened with the spiritual cares of large numbers of people that their energies and initiative cannot extend beyond the strictly religious aspects of their calling. Enough leadership does exist, however, to indicate the possibilities inherent in the position the true pastor occupies in a community.

Outstanding examples of civic betterment have come from some of the poorer company camps fortunate enough to possess a spiritual leader cognizant of his obligation to brighten his parishioners' daily lives. In one community, a young preacher, in the tradition of the pioneer and with the zeal of a crusader, built a church in a dreary hollow. Obtaining donations wherever he could, he soon had a part of the church equipped as a well-baby clinic and nursery school. Next, a playground was added, then a swimming pool. Money collected from the miners, their union, the operator, and village business men,

*Scene at a summer camp operated by one large coal company for the children of the employees of its several mines. Excellent facilities and trained leadership are provided, so that each miner's child may spend an enjoyable and profitable 2 weeks. This was the only such camp encountered.*



plus a Federal Public Works allotment, made these innovations possible, but no amount of money would have availed anything if the preacher had not exhibited the enthusiastic leadership required to launch the movement.

The good schools and recreational areas in a Pennsylvania town have been derived, chiefly, from the energy of a priest who came to this coal community 3 decades ago and at once built a church. Although of Irish extraction, he nonetheless was quick to learn the Slovak tongue, ignorance of which would have been a handicap. In addition to the church, the priest was instrumental in building schools and became president of the local board of health and the park board. As head of the park board he has the responsibility of administering a 30-acre tract which was donated by a coal operator and has since been developed as a recreational area, with a swimming pool, picnic groves, dance pavilion, and athletic fields.

### *Commercial Enterprises*

Commercial enterprises that meet the demands of the public in general for amusement and recreation have no deep roots in coal camps or in areas adjacent to them. (See table 51.) Although miners are said to be "good spenders" when they have the money, their incomes are irregular, and the establishment and maintenance of permanent facilities requiring heavy outlays of capital are too risky for private investors to undertake. Consequently, motion-picture theaters and other amusements exist only in the largest camps where the coal companies themselves have built them. In other camps, the residents must depend upon the nearest town that is large enough to have a theater, or upon the itinerant exhibitor who calls at the camp with his projector once or twice a week, or semimonthly, and shows his pictures in the school building or church basement. Even so, 45 of the 257 communities surveyed did not have motion-picture shows and were too far from localities where there were theaters to have been considered as having any available to the residents. Billiard and pool "parlors," which require less capital for maintenance and are already part of the structural facilities of many camps, are not available to the



*The "juke box," as well as the radio, has brought some music into lives of miners. The "juke box," however, is usually found outside the camp, in the bars and drug stores at the crossroads or in town.*

residents of 94 communities; and bowling alleys are not provided for the people in an even greater number of camps. Other commercial facilities, such as tennis courts, swimming pools, golf courses, and dance halls, are even scarcer. In a number of places, facilities that have been constructed by a commercial firm, mine operators, or others are not being used. For example, 163 out of 257 communities have dance halls, but only 56 are in use; 67 communities have skating rinks, but in only 26 are they open for business. Carnivals and other traveling shows that include many mining communities on their circuits have been reported to do a thriving business on coal-industry patronage because the people are hungry for entertainment. Such shows, when encamped or lodged on company property, are said to be supervised by the operators to prevent extortion and cheating of the miners and their families.



*In the few coal camps where drug stores and soda fountains can be found, they are popular with the miners, their wives, and children.*

Prior to the War, district and State-wide competitions between first-aid teams of the various mines, and also competitive meets between teams of the various mining companies, aroused considerable interest. A local contest was an occasion for picnicking, and often took on the aspect of a county fair, which large numbers of people attended. Should first-aid training be revitalized, competitive meets will undoubtedly flourish again.

People of the coal-mining communities also have a great interest in regular spectator sports, such as baseball, basketball, and football. Aside from their enthusiasm over local teams that participate in the several active coal-mine leagues, particularly in the

Appalachians, or in local high-school athletic contests, they exhibit great interest in professional sports. It is not uncommon for southern Illinois miners to drive as far as 150 to 200 miles into St. Louis to see a major league baseball game. The professional baseball and football contests in Pittsburgh attract thousands of miners within a 100-mile radius. Minor-league and semiprofessional baseball games, in which teams from cities like Bluefield, Logan, and Welch, W. Va., play, are said to be strongly supported by the coal-mining population.

In general, however, commercial entertainment of all types meets the recreational needs of miners and their families only partly and sporadically.

## *Liquor*

In some of the communities that permit the sale of beer and whisky, laws prohibit sales on Sunday. Vending of liquor is prohibited in 95 of the communities studied and beer in 69 communities. However, according to the Survey findings, liquor is not sold at any time on company property in any coal camps. To many miners denied salutary recreational opportunities, building up to a glorious state of intoxication has been said to be their idea of a pleasant week-end. This can be verified by observations in the isolated company camps and rural settlements. At one camp in West Virginia it is a regular custom each Saturday for miners to visit the Justice of the Peace and pay their \$5 fines for drunkenness in advance. The cooperative justice accepts their money, obviating a Monday trial that would interfere with the men's jobs. Similar understanding and cooperation also are exhibited by certain operators who will, upon request by a miner, add another item to his pay-roll check-off list—the locality's customary fine for intoxication.

## *Community Services*

Inhabitants of even the smallest towns have their drug store, their beauty parlor, and many other services that are commonplace in urban areas but luxuries in a coal-company camp. It was observed that many families utilized mail subscriptions to newspapers. Inhabitants of 50 camps have access to drug stores, 38 to banks, and 52 to shoe-repair shops, but in some instances these conveniences may be in a town or village several miles away. Of all the communities surveyed, only 90 maintain public libraries, and many of these are open only a few hours weekly. Noncompany communities are endowed more abundantly with drug stores, banks, and laundries, inasmuch as the majority are in urban areas. Nearly all of the camps have a post office, or at least a nook in the company store or office building, where mail is received and stamps and money orders are sold. Often the sign on the post office, or on the side of the tippie, is the only inscription in the camp that keeps it from complete anonymity. It may be the only way that a stranger would know, without

*Miners playing cards on a day when the mine is down, a form of recreation as common in coal camps as elsewhere.*







asking, whether he was passing through Coaltown, Minersville, Blackburn, or many another settlement that, from a passing train or an automobile on the highway, seems to consist of a cluster of houses, a slag pile, and a tippie.

### *Company Store*

One institution common to the coal camp is the company store, owned and operated by the mining company or by a separate company or corporation affiliated with the mining company. According to the National Coal Association, 2,850 such stores are operated by or affiliated with the coal-mining industry, representing an investment of \$150,000,000 in buildings, real estate, and equipment and employing about 28,000 sales people, buyers, executives, delivery men, and clerical personnel. Most of these stores were born of the same necessity that obligated coal operators to provide housing for their employees. They are usually housed in one of the best buildings on the property, very often in association with the company offices. The attractiveness of the buildings, equipment, and displays, and the cleanliness of their appearance are in direct ratio to the attractiveness and cleanliness of the community. Hence, at the well-built and well-maintained modern communities owned by the large operators, the company stores are comparable to the best in many American towns; and where the camps are poorly built and run-down, the stores are typical of the old-fashioned, small, village general store. Their size, and the quality and amount of merchandise they carry, depend upon the population of the camp and surrounding areas, the relative isolation of the camp, and the extent of competition, if any, offered by independent merchants near the camp or by stores in nearby towns.

Aside from its major purpose of selling goods, the company store is an important meeting place. People who have not lived in a village have little or no appreciation of the pleasure in going down to the

general store and embarking on an hour or two of gossip and just plain loafing. The company store is the mecca for everyone in every coal camp. Even when the store is closed, the men gather there in their free time, frequently after working hours, and on Sundays and holidays. It is a common sight in summer to see miners, and often the women and children in the community, sitting or squatting on the porch or steps of the store, relaxing in idle talk. For the wives of the miners the visit to the company store, when they are not too busy to make the trip, offers the nearest approach to relaxation and diversion in their daily routine. Here they learn and dispense the local news, read their mail, and meet their friends, as well as buy their groceries and supplies. To Management, the company store may be strictly business, but to the miners and their kin it is commissary, club room, and bulletin board rolled into one.

Company stores are found in greatest numbers in the Appalachian area, particularly in the southern part, but they also are noted in the Far Western States, where the coal mines are considerable distances from towns and villages. They are virtually nonexistent in the central bituminous-coal areas.

Modern refrigeration and good maintenance are common; but garbage and sewage disposal and rodent control vary considerably and correspond to the sanitation practices of the communities in which the stores are located, as described in the sections of this report dealing with sanitary facilities and with public health.

### *Price Comparisons*

The Survey teams attempted to compare food prices between company stores and competing independent merchants and chain stores. The study was first undertaken during Government regulation of prices under the Office of Price Administration, but during the period of the study, prices were decontrolled, resulting in such violent fluctuations daily that the data became meaningless. On the basis of general observations only, which cannot be supported statistically, the consensus of opinion of the investigators was that company stores, most of which conduct business on a credit basis, generally, but not always, charged slightly higher prices than the chain

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*The company store, an institution in most coal camps, has progressed more than other facilities. Many company stores are modern, attractive, and well-stocked, and serve as a meeting place as well as a commissary for the miners' wives.*

stores and other "cash-and-carry" establishments in the nearby communities on such basic food items as milk, bread, flour, potatoes, and lard. In certain instances they were lower-priced than individual independent stores operating on a credit and delivery basis. On items other than foods, no comparisons of the data were made.

Although the miners recognize the company store as a favorite meeting place, as well as a convenience, suspicions—once fairly general—that exorbitant profits are made by the operators and that dishonest practices in juggling accounts are conducted in some places, still linger and affect the attitudes of the miners. This was reflected in the terms such as "grab-off" applied to the company stores in a few places. No attempt was made to verify such allegations, and no evidence to substantiate these charges came to the attention of any of the members of the Survey teams.

### *Competitive Advantages*

The United States Coal Commission made a number of pertinent observations during its survey of company stores, which appear to be as relevant today as they were 23 years ago. In its report (issued in 1925), the Commission said, in part, the following:

\* \* \*. The majority have given miners' families as varied a supply and as good grade of food as would be found in city stores. The system of openly forcing employees to buy at commissaries is said to be no longer in practice. But the distinction between "forcing" people to buy at the company store and "drawing trade" depends somewhat upon the point of view. The energetic store manager desires to show good profits at the end of the year. To do this, if he has competition to meet, he must depend on rapid turn-over of stock, which in turn means many customers. He has access to the mine company's pay roll and can find out which families do none or but part of their buying at his store. If he solicits the trade of these families or asks a friendly superintendent of the mine to help him out, he is doing no more than any wide-awake merchant would do. Yet

*The practice of issuing scrip in lieu of currency as an advance on miners' wages flourishes in some regions, and is subject to abuses. Merchants in some towns in coal-mining regions openly offer to redeem scrip at a discount.*



he is exposing himself and his company to the charge of "forcing purchasing." The genial manager arouses no gossip by pursuing these tactics, but the less sociable man produces ill feeling toward the company. Relations of employee and employer are less clouded with personal feeling where company stores do not exist.

Several circumstances tend to favor the position of the company store. First, it is located in the heart of the mining patch, and when the miners live for the most part in company houses, as for example, in New River, it is the store most conveniently reached. Again, many company stores carry as large a stock of goods as the largest town stores and a much larger stock than the independent roadside stores. And, third, the miner's family must have cash to do business with mail-order houses; it must have cash or credit to buy from independent stores; whereas the company store will issue scrip to it as fast as the miner's daily earnings accumulate. In every respect less effort is required on the part of the miner's family to buy at the company store than elsewhere.

Then, again, the company-owned store has many advantages over the independent stores in mining communities. It has the credit standing of the mine company. Most of its trade is pay-in-advance trade. When credit is extended to a family its financial position is known definitely. When employment is to be irregular, the store knows in advance and can regulate its buying and selling accordingly. The independent retailer, unless possessed of capital, or fortunate enough to begin business when the mines are operating regularly, has a difficult time surviving in a community where the opening or closing of a mine means cash or no cash in the community. He must do most of his business on a credit basis, counting on the miner to pay him each biweekly pay day. If the miner does not pay, there is no property to attach nor will the coal company assume any responsibility in the matter. When the miner has money he does pay his bills, but when unemployment leaves him without funds the merchant may extend him credit in the hope that bills will be paid when the miner resumes work, or may refuse him credit and risk losing his trade and the trade of his friends when the mine starts. As a consequence a number of independently owned stores come into existence when the mines begin work and go out of business when the mines are not operating.

While the company store is a necessary institution in new regions, its continuance for too long a period has a bad effect on the very people served. The practice of issuing scrip for store purchasing as fast as money is earned, is a great convenience to the miner when earnings are irregular, but it relieves the miner's wife of all responsibility for planning the household budget. As the dinner hour approaches the children run down to the store to get a dollar's worth of scrip with which to buy the evening meal. When sales slips are not used, the mother has no way of reckoning what each article cost, or whether the clerk made the correct deduction. She makes no careful examination of foods in market or of prices. If she had to pay cash she would have a much keener sense of the value of the money and of commodities. Undoubtedly a sudden change from the pay-roll-deduction system to earning-in-full system would result,

at first, in extravagant expenditure of earnings and nonpayment of bills. But miners and their wives are adults. They should be given the responsibility of adults as soon as the growth of the community develops or attracts competent, independent merchants to their district.

## *Issuance and Use of Scrip*

Scrip, a form of nonnegotiable local currency, has been in use in the coal industry of the United States for more than 75 years.<sup>2</sup> At one time, it was the prevailing practice in sections of the industry to issue scrip in lieu of money for wages, but legislation and labor contracts have outlawed this custom. Today, where scrip is utilized, it is used as an advance against wages earned but not yet payable. It also is the practice of some mining companies to issue scrip as a credit advance on unearned wages during periods of unemployment, for use exclusively in company stores. The scrip which is in use currently is either in the form of metal coins or perforated sheets of coupons in small denominations. Other forms are found. Usually, there is stated on the scrip: "Nonnegotiable—Payable in Merchandise Only." Operators using scrip find that it simplifies bookkeeping, both at the mine office and company store.

During the course of the Survey, scrip was found in use in the coal areas, as follows: 45, or 17 percent, of the 260 mines in the Survey were reported to be issuing scrip. The practice was found to be most common in the Southern Appalachian coal fields.

Legislation has been enacted in many States with a view to protecting workers in their employee-employer relationships. Laws of this kind include those governing the payment of wages in scrip, applicable to employees in their capacity as purchasers at company stores or otherwise. Two-thirds of the States have passed laws with respect to the medium of exchange in the payment of wages, and the following bituminous-coal States, requiring wages to be paid in legal tender, are included in this category:

Kentucky, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, Illinois, Indiana, Iowa, Michigan, Kansas, Arkansas, Oklahoma, New Mexico, Colorado, Utah, and Washington.

A few States specifically forbid discounting scrip;

<sup>2</sup> Office of the National Recovery Administration, Division of Review, Report of the Committee on the Economic and Social Implications of the Company Store and Scrip System: March 1936.

most of them require that any scrip issued must be redeemed in lawful money at face value. Those States forbidding the discounting of scrip are:

California, Connecticut, Illinois, Mississippi, Oregon, Washington, and Territory of Puerto Rico.

Colorado forbids the employee to waive payment of his wages in lawful money or to take all or any part of it in merchandise.<sup>3</sup>

Some bituminous-coal States also have specific statutes which are intended to insure the employee's freedom to choose the stores at which he makes purchases. These States are as follows:

Indiana, Iowa, Michigan, Kentucky, West Virginia, Oklahoma, Tennessee, Utah, and Washington.

So, it can be noted that many States have taken cognizance of advance payment of wages by scrip and the discounting of the same. In spite of laws requiring that wages shall be paid in lawful money, the practice of issuing scrip still flourishes.

Miners can take their scrip to the company store and get full face value for it in merchandise, but if they desire cash for it from the company store, the store usually pays 90 cents on the dollar. Some companies will not permit stores to redeem scrip at a discount, and store employees are threatened with discharge if found doing so; nevertheless, the practice of discounting scrip is reported to be general. If the miner chooses to use his scrip at stores other than those owned by the company, the independent merchant will discount it as much as 25 cents on the dollar for any such transactions. In some coal districts, merchants in towns near the mines will accept scrip at 75 percent of its face value. The merchant, or other person buying it at 75 percent of its value, might sell it to a filling station operator for 80 percent of its value, who in turn might sell or trade it for 85 or 90 percent of its value. Eventually

<sup>3</sup> Bureau of Labor Statistics, U. S. Department of Labor, *Monthly Labor Review*, vol. 43, July-December 1936, p. 75.

the scrip gets back to the operator, via the company store, where full face value in trade is given.

Most miners desire the opportunity to draw from the company an advance on their earnings prior to pay days, but feel that the requirement that such wage payments must be in scrip constitutes an unfair advantage over them, as it either obliges them to trade only at the company store or take a loss in the competitive markets outside the channels of the coal company. The Union, as a whole, is strictly opposed to it.

The chain and independent stores oppose it, as it puts them to a decided competitive disadvantage with company stores.

In general, the public is indifferent, as long as it is not affected.

Operators who issue scrip gain several advantages through the use of this medium, including (1) avoidance of the need for having large amounts of cash on hand; (2) increased trade at the company store; (3) a net profit to them on any scrip destroyed or lost; (4) a simpler system of bookkeeping than is involved in a charge-account system; and (5) the fact that large amounts of outstanding scrip represent lawful money made available to the operators as operating capital, and therefore they do not have to pay for commercial short-term loans to this extent.

The United States Treasury has declared that stamps and other innovations of negotiable exchange invented by the public are illegal<sup>4</sup> and ordered those sponsoring and circulating them to cease and desist. Many legal cases have been tried in court respecting the constitutionality of this form of exchange.

Alabama, West Virginia, and Tennessee permit the use of nonnegotiable scrip. In Kentucky, there is some question as to its legality.

<sup>4</sup> Federal Statute, Sec. 249, Title 15: "No person shall make, issue, circulate, or pay out any note, check, memorandum, token, or obligation for a less sum than \$1 intended to circulate as money or to be received and/or used in lieu of lawful money."

## DISCUSSION

The inadequacy of organized recreation in the Nation's coal-mining areas clearly reflects public inability or unwillingness to appreciate its importance

in good living and accord the problem due respect and consideration.

The dividends of a sound recreation program are

indirect. Its rewards are not measurable precisely in dollars and cents, but are undeniable; and the consequences of its absence are equally manifest.

The Survey indicates that recreational facilities and programs are: (1) Better and more readily available in the larger incorporated communities with diversified classes of people, such as factory workers, farmers, white-collar workers, and others in addition to miners; (2) poorer in those incorporated communities comprising primarily mining families and workers in professions, trades, and businesses dependent upon mining; and (3) poorest in coal camps, the company-owned, unincorporated communities made up almost solely of mining people. These facts point out that community organization is needed to provide the basic needs for recreational facilities and comprehensive leisure-time programs.

Organization into some form of local government, with citizenship responsibilities shared by the residents, is needed to achieve improved recreational opportunities as well as better sanitary facilities and sanitation-control measures. Individually, miners can do little more than provide simple recreation for themselves, such as hunting, fishing, picnicking, and other individualistic forms of diversion. Collectively, however, they should be as capable of initiative and endeavor as any other group. They have permitted themselves to become the beneficiaries of paternalism, placing themselves by their passivity in a position contrary to American tradition and practice. All over the United States, groups of people have organized themselves and are continuously organizing themselves into various civic and fraternal groups to take care of their mutual business and social needs, including recreation. The miners are backward in recognizing that fact. It is time—it has long been time—for them to assume a greater share of responsibility for their own off-the-job living.

Limitations and handicaps, of course, hamper achievement of that goal. First, the economic instability of the industry itself gives the miners a feeling of insecurity and impermanence. They believe that their incomes are less steady and reliable than those of other industrial workers, and the frequency with which many small operations alternately open, close down, and reopen engenders a psychology of transience even in those who have been residing in one

place for one or more scores of years. These attitudes are not helped by the fact that in the coal camps they live in rented homes under contracts that specifically deny them the rights to normal tenant-landlord relationships. Incorporation of a coal camp as a municipality can be undertaken only with permission of the mine operator and land owner, but organization into civic-betterment bodies and fraternal organizations, even though such action may be suspect in some instances, is not denied them, and in most places probably would be welcomed and supported. It would be far better for miners to provide recreation, as well as other activities and needs, by themselves, independently through organization, than to continue to depend upon, and thus be subjected to further domination by, either the operators or the Union. The leadership, although latent, exists. Intelligent men are no more lacking in coal camps than elsewhere.

Although it is a community responsibility to provide adequate recreational facilities and to staff them with qualified leaders who will achieve their maximum utilization, it is disheartening to contemplate how long it might take for the majority of the country's coal-mining centers to acknowledge the need and take appropriate action, unless they receive the momentum that can be given by operators, union officials, and others, including Government.

Meanwhile, much can be done by Management and Labor. Each has a collateral responsibility for the recreational needs of the mine workers. Operators who have undertaken the responsibility of housing their employees and families have, in effect, established communities with themselves as "Government" and, as the only governing bodies of these communities, cannot ethically limit arbitrarily the boundaries at which they will cease to assume obligations. They automatically become responsible for a safe water supply, adequate sanitation, and other phases of community life ordinarily assumed by local government.

Operators who have recognized their obligations have made their communities outstanding. There is a correlation between the character of the housing and sanitary facilities in coal camps and recreational activity. Where housing is well constructed and maintained and where the most modern sanitary

facilities are provided and control measures practiced, recreational activities generally are more intensive and are engaged in by large numbers of the people over longer periods. In some of the better camps, regardless of their isolation or their difficulties stemming from topography, recreational facilities are provided most generally by Management; and professional recreation leaders are employed. In the poorly constructed, poorly maintained camps, the recreation is at a minimum.

The Union, also, because of the comprehensiveness of its organization, has unusual opportunities to provide the local leadership necessary for community organization. Ex officio, the officers of locals and field representatives of the Union can do much to encourage and stimulate recreation at the

several camps where they also are in residence. The fact that such leadership is being exercised in a few communities indicates the potentialities inherent in the organization. Care, however, must be taken to make sure that leadership, stimulation, and encouragement are exercised rather than direction, domination, and the sort of participation that cannot be separated from the functional activities of the Union as set up by its own constitution and bylaws.

With Labor and Management working together, to their mutual gain, wholesome recreation could spring up to relieve the desertlike barrenness of the typical company camp. The interval between the end of one day's work and the beginning of the next in the miner's life can be enriched without difficulty by cooperation of these two groups.



*Uncovered drinking water supply in miner's home subject to contamination—an illustration of the need for education in health and hygiene.*

It is incumbent upon operators and union leaders to harmonize their differences in this respect to help the citizens of the community provide good—not luxurious, but good—diversional opportunities for the miner and his family, then jointly see that they are utilized. The trail has been blazed. In isolated cases, local labor leaders and Management have given moral and financial support; in such instances, the results are said to have been both beneficial and profitable to the sponsors.

The distressingly uncommon utilization of church facilities for recreational purposes, particularly in company camps and the smaller towns, may be attributed chiefly to lack of adequate financial support. Too many of these communities cannot, or will not, engage pastors on a full-time basis. As a consequence, the facilities that church buildings and parish halls would provide for meetings, socials, and games are too little used.

Just as the shortage of full-time clergymen results in lowered utilization of church properties as community centers, so does the shortage of well-trained, energetic teachers bring about a corresponding condition with respect to school buildings. The best teachers, those who would make the best leaders, can scarcely be expected to be attracted by low pay and by the colorless surroundings characteristic of a majority of camps.

The lack of kindergartens and preschool play centers, which stems from insufficient financial support, is conspicuous in mining communities. On the other

hand, many consolidated schools have proved that the advantages enjoyed by town and city pupils, as measured in gymnasiums, auditoriums, swimming pools, and the like, can be duplicated in rural areas for the benefit of miners' children, if the necessary interest and appropriations are forthcoming. Many of these progressive schools are built of brick and steel, well-lighted, well-ventilated, well-heated, and a boon to the pupils and the parents alike. They are made possible by pooling the finances of various school districts. Some have only the junior and senior high-school grades; others run from the first grade through the twelfth. They are a focal point for recreation for the entire community.

The conclusion that recreational needs are largely unmet is neither new nor startling. It has long been acknowledged, but nothing significant has been done about it. There are no short cuts or sleight-of-hand tricks for achieving overnight success in establishing and conducting adequate recreational services.

When the welfare and recreational opportunities of the coal miner and his family are totaled, with particular reference to those whose residence in company camps or villages denies them the conveniences enjoyed by fellow workers living in towns and cities, the sum is pitifully small. To increase that sum, to help these people to provide for themselves the important things millions of Americans accept as commonplace—that is the task to which Management and Labor, with the active encouragement of Government, should address themselves.



# Recommendations

The recommendations presented herewith can be comprehended adequately only when related to their appropriate references in the text of the report. They are directed toward conditions which are general or common in the bituminous-coal-mining industry, and do not attempt to deal with problems that are peculiar to certain districts or specific coal-mining operations.

## HOUSING

*It is recommended that:*

1. Coal-mining companies owning or managing dwellings which are occupied by their employees undertake at the earliest practicable time the improvement and modernization of such dwellings and appurtenant facilities.

2. Management and Labor reopen and review existing rental agreements and contracts with a view to readjustment of rents for company-owned dwellings, such new rents to make allowances for specified programs of periodic maintenance and repair and to assure a reasonable return to the owners on their investment.

3. Coal-mining companies initiate action toward elimination of inequitable provisions in rental leases for company-owned dwellings.

4. Coal-mining companies, in cooperation with the Union, encourage and assist in the incorporation or other formal organization of unincorporated or unorganized coal-mining communities, where feasible and where warranted by their location and size of population.

5. Coal-mining companies owning dwellings which they rent to their employees enable their tenants to purchase the dwellings at reasonable prices and upon liberal credit terms, such housing, however, to be sold only when concomitant arrangements are made for the orderly and coincidental transfer of essential utilities, or when suitable arrangements are made to assure purchasers of continuous utility services.

6. The United Mine Workers of America assist its members in purchasing their own homes, where conditions of employment are favorable, either from coal-mining companies or from others, or in building their own homes, by (a) giving miners advice and legal assistance in such transactions; and (b) aiding miners in obtaining long-term loans at low interest rates for such purposes.

7. The United Mine Workers of America investigate the practicability of establishing local housing corporations, where the concentration of miners warrants such action, for the development of modern housing projects with financial assistance from appropriate Federal, State, and local government housing agencies.

8. The United Mine Workers of America provide guidance to miners in connection with rental of dwellings owned or offered for rental by real-estate operators, individual owners and others, as well as coal-mining companies.

9. The several bituminous-coal mining States, by legislation or, where authority already exists, by regulation, establish, or cause to be established, adequate minimum housing standards to be applicable in all areas not otherwise covered by adequate building codes and ordinances. The data set forth in the following publications are suggested as guides in the formulation of standards:

A. Minimum Property Requirements for the appropriate State, Federal Housing Administration, National Housing Agency, 1946.

B. Farmhouse Plans, U. S. Department of Agriculture Bulletin No. 1738, October 1934.

C. Emergency Minimum Sanitation Standards, U. S. Public Health Service Reprint No. 2529 from the Public Health Reports, Vol. 58, No. 58, December 10, 1943, pages 1793 to 1823.

D. Rural Sewage Disposal—Recommendations of the Joint Committee on Rural Sanitation, U. S. Public Health Service, Reprint No. 2461, Public Health Reports, Vol. 58, No. 11, March 12, 1943, pages 417 to 448.

10. The several bituminous-coal-mining States enact appropriate legislation or, where authorizing legislation already exists, issue regulations requiring builders to obtain permits from appropriate local governmental units or from the State for all new housing construction, and to comply with the ap-

plicable minimum standards, codes or ordinances established for new housing construction.

11. The several bituminous-coal-mining States empower county health departments or other appropriate existing county agencies to approve simple plans and specifications for the construction of housing in rural areas, in unincorporated communities or other communities where codes or ordinances embracing adequate minimum standards of construction do not exist, or where authority for the adoption of such codes or ordinances is nonexistent, in order that new construction may comply with minimum standards set by the counties or the State; the county agencies so empowered to be staffed with engineers for these and correlated functions, including sanitation.

## SANITATION AND PUBLIC HEALTH

### *It is recommended that:*

1. Coal-mining companies take active steps, without delay, to assure a safe and potable water supply, and adequate sewage disposal (including the supplanting of existing privies, where necessary, with sanitary privies or with modern disposal facilities), to provide positive means for the organized collection and proper disposal of garbage and refuse, and otherwise to improve the basic sanitation of company-owned communities.

2. Coal-mining companies, in cooperation with local unions, institute action to establish at each company-owned community a committee composed of the company physician and resident representatives of the Union and of Management, such committee (a) to maintain frequent, periodic inspections of sanitary facilities and services in order to prevent abuse by tenants, to assure continuous protection of water supplies and adequate control of sewage and other wastes, and to promote improvements in basic sanitation; (b) to assist in fire-prevention measures and activities and to aid in the establishment of fire-fighting organizations; (c) to join with civic groups and others in concerted efforts to bring into their community the services of existing public health agencies; and (d) to join with similar committees at other communities and with coal-mining companies, local unions, veterans' organizations, civic, fraternal, and business groups, and other organizations and

individuals in promoting the establishment of competent local health departments where none exists.

3. The several bituminous-coal-mining States enact legislation, or amend existing legislation (a) to require the frequent, periodic testing of community drinking-water supplies, private as well as public, and to provide for the free analyses of water samples; and (b) to require new housing projects (whether at established mines or at newly opened mines) to be provided with adequate water-distributing systems and sanitary sewerage systems.

4. The several bituminous-coal-mining States which now have inadequate or no laws relating to wash and change houses enact legislation making it compulsory that coal-mining companies provide and maintain adequate wash and change houses, suitably constructed and equipped, at their mine sites.

5. The legislatures of the several bituminous-coal-mining States appropriate sufficient funds, expendable at State and county levels, for the effective implementation of laws and ordinances providing for the protection of miners and other citizens in matters relating to basic sanitation, including water supply, sewage disposal, garbage and refuse disposal, and stream pollution.

6. Local unions, coal-mine operators, civic groups, veterans' organizations, and citizens' associations use their organized efforts to make clear to their appropriate local and State governmental representa-

tives the needs of their communities for improved public health measures, and to stimulate the establishment of health programs for preschool and school-age children (including dental health), to work toward the adoption of effective ordinances and control measures for water, milk, food, restaurant, and waste disposal sanitation, and to promote continuous community programs in health education for miners and their families.

7. The Federal and State health agencies undertake, with the cooperation of coal-mining companies and the coal miners' unions, an extensive and continuous program of health education of miners and their families, utilizing audio-visual aids such as sound films and radio broadcasts, such a program to include personal hygiene, nutrition, community sanitation, and industrial health.

8. Coal-mining companies encourage and assist coal-mine physicians, by remuneration and otherwise, in the promotion of health-education programs, health programs, and utilization of public health services and in the practice of preventive medicine within company-owned communities.

9. Philanthropic foundations, in collaboration with

medical societies, establish and maintain demonstration programs and projects in selected areas in the bituminous-coal-mining States designed to effect reductions in infant and child morbidity and mortality, the responsibility for such programs and projects eventually to be assumed by official health agencies in the States.

10. Public health agencies in the several bituminous-coal-mining States provide tuberculosis case-finding programs, including follow-up services for cases and contacts, and promote the establishment of adequate facilities for the care of the tuberculous.

11. Public health agencies (Federal, State, and local), in cooperation with medical societies and organizations and individual medical practitioners, establish or improve the reporting, recording, and analysis of morbidity and mortality statistics in terms of major occupation groups so that interpretations may be made of conditions affecting the health of workers and their families in a major industry such as bituminous-coal mining.

12. Voluntary health agencies extend their activities to include rural and isolated coal mining communities.

## INDUSTRIAL MEDICINE AND HYGIENE

### *It is recommended that:*

1. The research activities of the bituminous-coal industry be expanded to include industrial medicine and industrial hygiene, such research to encompass industry-wide studies and investigations of the nature, occurrence, and control of occupational diseases and disabilities peculiar to the industry; the research organization to provide consultant services and to make special studies, on a reimbursable basis, at individual mines where their size and economy of operation do not warrant the employment of full-time industrial hygiene specialists, and where official agencies are unable to provide such services.

2. Coal-mining companies retain or employ physicians, either full time or part time, depending upon the number of mine employees and the industrial medical needs of the various coal mining operations, to discharge Management's responsibilities in protecting and promoting the health of employees at every bituminous-coal mine; such

activities of the company physician to be incorporated into a clearly defined and comprehensive program of industrial medicine and hygiene that is separate and distinct from general medical care and hospitalization programs which are paid for by the employees themselves.

3. The program of industrial medicine and hygiene sponsored and financed by Management include the following provisions:

a. All miners to have the benefit of carefully performed physical examinations (preemployment or preplacement and periodic), including chest X-rays and complete urinalyses, and medical history and physical examination records to be carefully recorded and filed only in the custody of the physician or the medical department.

b. All cases of serious injury to have professional medical attention promptly upon removal from the mine or other working place, and definite arrangements to exist at all times for adequate ambulance

transportation and immediate hospitalization of employees requiring such care; physicians, nurses, or trained first-aid attendants to accompany the injured miners during transportation in ambulances to hospitals.

c. First-aid facilities, adequately equipped and maintained (including telephonic communication in underground mines with the surface), to be provided at or near the portal and at suitable places within every mine, such facilities to be inspected periodically and frequently for the adequacy of the equipment and the suitability of the location of such facilities by the company physician or other competent personnel responsible to Management.

d. Industrial nurses or professional personnel of similar training and experience to be employed at surface medical-care facilities wherever warranted by the size and nature of the mining operation.

e. Company physicians to familiarize themselves with working conditions, both within the mine and above ground, and to cooperate with safety engineers and industrial hygiene engineers in the prevention and control of accidents and protection of the men against occupational diseases.

f. The company physician to be authorized to procure, as required, the consultant services of industrial medicine and hygiene specialists, and to request, when desirable, on behalf of Management, Federal, State, and local public health agencies to render industrial hygiene services at the bituminous-coal mines.

g. Company physicians, whether they be neighborhood general practitioners or specialists devoting full time to industrial medicine, to be authorized by Management to cooperate with the Federal Bureau of Mines instructors; to share with the mine-safety engineers in the supervision of the first-aid training program at each mine; to make careful studies of first-aid practices and of the transportation of injured persons within individual mines; and to recommend improvements to Management.

h. Management to maintain accident and absenteeism records that will be of assistance to the company physicians in analyses of causes and frequencies of industrial injuries and occupational diseases.

4. The Federal Bureau of Mines, in accordance with its basic law, broaden its program of health and safety to embrace industrial medicine and hygiene as supplementary to its other services to the bituminous-coal industry.

5. State and local health departments expand their industrial hygiene services to include programs for the coal-mining industry.

6. The several bituminous-coal-mining States not having adopted compulsory workmen's compensation acts, enact such legislation, and that the general coverage type of occupational disease provisions be included in the laws of all bituminous-coal-mining States.

7. Physicians attending compensation cases submit claims and other records to the appropriate agency so that the provisions of the existing compensation acts will be fulfilled.

8. Management and Labor share in the costs of first-aid training at each mine; and Labor and Management, by their cooperative efforts, use every means at their disposal to attain 100 percent first-aid training of coal miners.

9. Medical associations encourage and support the development of the speciality of industrial medicine, and a speciality board be established for certifying such physicians, and, further, to take steps leading toward the establishment of chairs of industrial medicine in those leading medical colleges which can meet the requirements for a specialized post graduate curriculum.

10. The United Mine Workers of America and the coal-mining companies assume joint responsibility in determining ways and means to assist the physically handicapped miner, and the injured or diseased miner in need of rehabilitation.

## GENERAL MEDICAL SERVICES AND HOSPITALIZATION

*It is recommended that:*

1. An outstanding and recognized leader of the civilian medical profession be appointed a member of any trusteeship established, the purpose of which

is for the medical care and hospitalization of miners and their dependents.

2. The prepayment plans of medical care now widely accepted by tradition and custom in the bitu-

minous-coal-mining areas of the Nation be modified and consolidated into a broad prepayment system, based on sound actuarial principles, to provide comprehensive medical services to coal-mine employees and their dependents in accordance with the fundamentals set forth in the discussion parts of the sections of the report dealing with General Medical Services and Hospitalization.

3. Prepayment plans for dental services for coal-mine employees and their dependents be established in selected places in the bituminous-coal-mining areas on an experimental basis with a view to the eventual adoption of a prepayment system for dental services throughout the industry, or to the incorporation of such plans into a comprehensive prepayment system of medical care.

4. Hospital facilities in the bituminous-coal-mining areas, in order to meet urgent requirements, be increased in size and improved in quality:

a. Multiple small hospitals in single communities be consolidated whenever feasible, into nonprofit associations; or into single nonprofit institutions in order to benefit by the Federal Hospital Survey and Construction Act.

b. Small, poorly equipped, meagerly staffed hospitals which can not be consolidated with other hospitals affiliate themselves with larger institutions or limit themselves to special phases of hospital care.

c. Hospitals in the mining areas expand their out-patient departments, extend their attending privileges to local physicians, and develop, where possible, teaching clinics in order to advance the

standards of medical practice among the practitioners in their vicinity.

5. The several bituminous-coal-mining States meet the requirements of the Federal Hospital Survey and Construction Act and adopt, or authorize local subdivisions of Government, where necessary, to adopt, strict construction codes and renovation codes in order to provide enforceable standards of safety, fire protection, and sanitation for hospitals.

6. The several bituminous-coal-mining States establish standards for hospital administration, facilities, and practice in accordance with principles promulgated by the American Hospital Association, the American Medical Association, and other medical associations; license hospitals; and provide for their periodic inspection by the State departments of health, or other appropriate agencies, in cooperation with medical and hospital associations, with authority to make recommendations for improvement and to issue summary reports of conditions publicly.

7. The United Mine Workers of America and its local unions, together with coal operators' associations and individual coal-mining companies, provide leadership and assist local communities in the establishment or improvement of local hospitals where needed as provided in the Federal Hospital Survey and Construction Act.

8. The United Mine Workers of America seek the cooperation of public and private agencies and organizations in order to promote and undertake studies of the actual total costs of complete medical care (including dental care) to miners and their dependents.

## OFF-THE-JOB LIVING

*It is recommended that:*

1. The United Mine Workers of America and the coal-mining companies, acting jointly on an industry-wide basis, establish a National Office of Recreation, employing a competent professional director with a small but competent staff, whose function shall be to promote, advise, and guide recreation activities at district and mine community levels, including:

a. The development of programs for both sexes and all age groups.

b. The development of recommended plans and

specifications for the construction, location, and financing of recreation facilities appropriate for various types of mining communities.

c. Stimulation of leadership and organization by local personnel and advice in the selection of trained personnel where justified.

d. Utilization of all resources available from private and governmental sources.

2. The various districts of the United Mine Workers of America and the coal-mine operators' district or area associations establish District Offices of Rec-

recreation, whose function shall be to promote and guide recreation activities at mining communities, including:

a. Promulgation, interpretation, and dissemination of the programs, plans, and information originating in the National Office of Director of Recreation or where otherwise available and appropriate.

b. Interpretation of local needs and problems to the National Office of Director of Recreation.

c. Active and direct stimulation in the organization of, and leadership for, recreational activities at mining communities.

3. Locals (or groups of locals where appropriate) of the United Mine Workers of America and individual coal-mining companies, under the advice and guidance of the national and district recreation offices, and in coordination with school, church, and other State or community organizations, provide trained leadership, and form mining-community recreation organizations participated in by all interested persons, and establish, implement, and put into effect comprehensive programs and to provide

facilities and equipment for organized recreation on a community basis.

4. The expense of the national and district recreation offices be borne by the coal mining companies and the Union jointly, and that the expense of the community organization and the activities in which it engages, and facilities therefor, be contributed to by the Union, the individual operator, and other interested organizations, public and private; individuals participating in certain activities also should contribute toward the expenses.

5. The several bituminous-coal-mining States establish, develop, or expand within their departments of education a recreation division, employing a professional qualified recreation staff, this staff and its resources to assist local communities and counties.

6. The United Mine Workers of America and coal-mining companies study and make recommendations regarding the feasibility of changing present working schedules to permit miners to start and quit work at hours more in conformity with those observed in other industries so that they may lead a more normal life.

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# Appendix

## KRUG-LEWIS AGREEMENT

This agreement between the Secretary of the Interior, acting as Coal Mines Administrator under the authority of Executive Order No. 9728 (dated May 21, 1946, 11 F. R. 5593), and the United Mine Workers of America, covers for the period of Government possession the terms and conditions of employment in respect to all mines in Government possession which were as of March 31, 1946, subject to the National Bituminous Coal Wage Agreement, dated April 11, 1945.

1. *Provisions of National Bituminous Coal Wage Agreement preserved.*—Except as amended and supplemented herein, this agreement carries forward and preserves the terms and conditions contained in all joint wage agreements effective April 1, 1941, through March 31, 1943, the supplemental agreement providing for the 6-day workweek, and all the various district agreements executed between the United Mine Workers and the various coal associations and coal companies (based upon the aforesaid basic agreement) as they existed on March 31, 1943, and the National Bituminous Coal Wage Agreement, dated April 11, 1945.

2. *Mine safety program.*—(a) *Federal mine safety code.*—As soon as practicable and not later than 30 days from the date of the making of the agreement, the Director of the Bureau of Mines after consultation with representatives of the United Mine Workers and such other persons as he deems appropriate, will issue a reasonable code of standards and rules pertaining to safety conditions and practices in the mines. The Coal Mines Administrator will put this code into effect at the mines. Inspectors of the Federal Bureau of Mines shall make periodic investigations of the mines and report to the Coal Mines

Administrator any violations of the Federal Safety Code. In cases of violation the Coal Mines Administrator will take appropriate action which may include disciplining or replacing the operating manager so that with all reasonable dispatch said violation will be corrected.

From time to time the Director of the Bureau of Mines may, upon request of the Coal Mines Administrator or the United Mine Workers, review and revise the Federal Mine Safety Code.

(b) *Mine safety committee.*—At each mine there shall be a mine safety committee selected by the local union. The mine safety committee may inspect any mine development or equipment used in producing coal for the purpose of ascertaining whether compliance with the Federal Safety Code exists. The committee members while engaged in the performance of their duties shall be paid by the union, but shall be deemed to be acting within the scope of their employment in the mine within the meaning of the workmen's compensation law of the State where such duties are performed.

If the committee believes conditions found endanger the life and bodies of the mine workers, it shall report its findings and recommendations to the management. In those special instances where the committee believes an immediate danger exists and the committee recommends that the management remove all mine workers from the unsafe area, the operating manager or his managerial subordinate is required to follow the recommendation of the committee, unless and until the Coal Mines Administrator, taking into account the inherently hazardous character of coal mining, determines that the authority of the safety committee is being misused and he cancels or modifies that authority.

The safety committee and the operating manager

shall maintain such records concerning inspections, findings, recommendations and actions relating to this provision of the agreement as the Coal Mines Administrator may require and shall supply such reports as he may request.

3. *Workmen's compensation and occupational disease.*—The Coal Mines Administrator undertakes to direct each operating manager to provide its employees with the protection and coverage of the benefits under Workmen's Compensation and Occupational Disease laws, whether compulsory or elective, existing in the States in which the respective employees are employed. Refusal of any operating manager to carry out this direction shall be deemed a violation of his duties as an operating manager. In the event of such refusal the Coal Mines Administrator will take appropriate action which may include disciplining or replacing the operating manager or shutting down the mine.

4. *Health and welfare program.*—There is hereby provided a health and welfare program in broad outline—and it is recognized that many important details remain to be filled in—such program to consist of three parts, as follows:

(a) *A welfare and retirement fund.*—A welfare and retirement fund is hereby created and there shall be paid into such fund by the operating managers 5 cents per ton on each ton of coal produced for use or for sale. This fund shall be managed by three trustees, one appointed by the Coal Mines Administrator, one appointed by the president of the United Mine Workers, and the third chosen by the other two. The fund shall be used for making payments to miners, and their dependents and survivors, with respect to (i) wage loss not otherwise compensated at all or adequately under the provisions of Federal or State law and resulting from sickness (temporary disability), permanent disability, death, or retirement, and (ii) other related welfare purposes, as determined by the trustees. Subject to the stated purposes of the fund, the trustees shall have full authority with respect to questions of coverage and eligibility, priorities among classes of benefits, amounts of benefits, methods of providing or arranging for provision of benefits and all related matters.

The Coal Mines Administrator will instruct the

operating managers that the obligation to make payments to the welfare and retirement fund becomes effective with reference to coal produced on and after June 1, 1946; the first actual payment is to be made on August 15, 1946, covering the period from June 1 to July 15; the second payment to be made on September 15, covering the period from July 15 to August 31; and thereafter payments are to be made on the 15th day of each month covering the preceding month.

(b) *A medical and hospital fund.*—There shall be created a medical and hospital fund, to be administered by trustees appointed by the president of the United Mine Workers. This fund shall be accumulated from the wage deductions presently being made and such as may hereafter be authorized by the Union and its members for medical, hospital, and related purposes. The trustees shall administer this fund to provide, or to arrange for the availability of, medical, hospital, and related services for the miners and their dependents. The money in this fund shall be used for the indicated purposes at the discretion of the trustees of the fund; and the trustees shall provide for such regional or local variations and adjustments in wage deductions, benefits, and other practices, and transfer of funds to local unions, as may be necessary and as are in accordance with agreements made within the framework of the Union's organization.

The Coal Mines Administrator agrees (after the trustees make arrangements satisfactory to the Coal Mines Administrator) to direct each operating manager to turn over to this fund, or to such local unions as the trustees of the fund may direct, all such wage deductions, beginning with a stated date to be agreed upon by the Administrator and the president of the United Mine Workers: *Provided, however,* That the United Mine Workers shall first obtain the consent of the affected employees to such turn-over. The Coal Mines Administrator will cooperate fully with the United Mine Workers to the end that there may be terminated as rapidly as may be practicable any existing agreements that earmark the expenditure of such wage deductions, except as the continuation of such agreements may be approved by the trustees of the fund.

Present practices with respect to wage deductions

and their use for provision of medical, hospital, and related services shall continue until such date or dates as may be agreed upon by the Coal Mines Administrator and the president of the United Mine Workers.

(c) *Coordination of the welfare and retirement fund and the medical and hospital fund.*—The Coal Mines Administrator and the United Mine Workers agree to use their good offices to assure that trustees of the two funds described above will cooperate in and coordinate the development of policies and working agreements necessary for the effective operation of each fund toward achieving the result that each fund will, to the maximum degree practicable, operate to complement the other.

5. *Survey of medical and sanitary facilities.*—The Coal Mines Administrator undertakes to have made a comprehensive survey and study of the hospital and medical facilities, medical treatment, sanitary, and housing conditions in the coal mining areas. The purpose of this survey will be to determine the character and scope of improvements which should be made to provide the mine workers of the Nation with medical, housing, and sanitary facilities conforming to recognized American standards.

6. *Wages.*—(a) All mine workers, whether employed by the day, tonnage, or footage rate, shall receive \$1.85 per day in addition to that provided for in the contract which expired March 31, 1946.

(b) Work performed on the sixth consecutive day is optional, but when performed shall be paid for at time and one-half or rate and one-half.

(c) Holidays, when worked, shall be paid for at time and one-half or rate and one-half. Holidays shall be computed in arriving at the sixth and seventh day in the week.

7. *Vacation payment.*—An annual vacation period shall be the rule of the industry. From Saturday, June 29, 1946, to Monday, July 8, 1946, inclusive, shall be a vacation period during which coal production shall cease. Day-men required to work during this period at coke plants and other necessarily continuous operations or on emergency or repair work shall have vacations of the same duration at other agreed periods.

All employees with a record of 1 year's standing (June 1, 1945, to May 31, 1946) shall receive as com-

pensation for the above-mentioned vacation period the sum of one hundred dollars (\$100), with the following exception: Employees who entered the armed services and those who returned from the armed services to their jobs during the qualifying period shall receive the \$100 vacation payment.

All the terms and provisions of district agreements relating to vacation pay for sick and injured employees are carried forward to this agreement and payments are to be made in the sum as provided herein.

Pro rata payments for the months they are on the payroll shall be provided for those mine workers who are given employment during the qualifying period and those who leave their employment.

The vacation payment of the 1946 period shall be made on the last pay day occurring in the month of June of that year.

8. *Settlement of disputes.*—Upon petition filed by the United Mine Workers with the Coal Mines Administrator showing that the procedure for the adjustment of grievances in any coal producing district is inequitable in relation to the generally prevailing standard of such procedures in the industry, the Coal Mines Administrator will direct the operating managers at mines in the district shown to have an inequitable grievance procedure to put into effect within a reasonable period of time the generally prevailing grievance procedure in the industry.

9. *Discharge cases.*—The Coal Mines Administrator will carry out the provision in agreements which were in effect on March 31, 1946, between coal mine operators and the United Mine Workers that cases involving the discharge of employees for cause shall be disposed of within 5 days.

10. *Fines and penalties.*—No fines or penalties shall be imposed unless authorized by the Coal Mines Administrator. In the event that such fines or penalties are imposed by the Coal Mines Administrator, the fund withheld for that reason shall be turned over to the trustees of the fund provided for in section 4 (b) hereof, to be used for the purpose stated therein.

11. *Supervisors.*—With respect to questions affecting the employment and bargaining status of foremen, supervisors, technical and clerical workers employed in the bituminous mining industry, the

Coal Mines Administrator will be guided by the decisions and procedure laid down by the National Labor Relations Board.

12. *Safety*.—Nothing herein shall operate to nullify existing state statutes, but this agreement is intended to supplement the aforesaid statutes in the interest of increased mine safety.

13. *Retroactive wage provisions*.—The wage provisions of this agreement shall be retroactive to May 22, 1946.

14. *Effective date*.—This agreement is effective as of May 29, 1946, subject to approval of appropriate Government agencies.

Signed at Washington, D. C., on this 29th day of May 1946.

(Sgd.) J. A. KRUG,  
Coal Mines Administrator.

(Sgd.) JOHN L. LEWIS,  
President, United Mine Workers of America.

### THREE HOUSE LEASES

The following leases for company-owned houses are representative of many leases in use in bituminous-coal-mining camps.

#### Lease No. 1

##### EMPLOYEE'S HOUSE AGREEMENT

House No. .... Mine .....

This agreement, made and executed in duplicate this ..... day of ....., 19.., by and between ..... a voluntary association, hereinafter called the "Company" and ..... hereinafter called the "Employee."

##### WITNESSETH:

That the Company doth give to the Employee, who is now in its employ, as an incident to such employment and for the better performance of the service, the right to occupy the tenement house marked and known as No. .... at ..... upon the premises and coal property owned and or leased by the company in ..... County, ..... in consideration of the sum of \$ ..... per month, payable monthly, from the date hereof until the termination of the right hereby given, as hereinafter provided.

Said right of occupancy may be terminated at any time by either party hereto by giving to the other party 5 days' notice in writing of the intention to terminate the same, and, if such notice be given, said right shall cease and terminate upon the date specified therein for the termination, and if no such date be specified, shall end and terminate upon the fifth day after the service of such notice; and said right shall, without notice, end and terminate whenever, from any cause whatsoever, the Employee shall cease to work for the Company or be in its employ; and on the termination of said right, either by notice as aforesaid or by the Employee ceasing to work for and be in the employ of the Company, the Company may, without further notice, demand, or proceeding, reenter upon the property above described and take full and complete possession thereof, and remove the Employee and the goods and effects of the Employee therefrom forcibly, if necessary; the Employee hereby agrees to release and does hereby release the Company from all damages by reason of any such reentry and taking possession of said property and the removal of the Employee and his goods and property therefrom; and in case of such removal and taking possession the Company shall be under no obligation to care for the goods and property of the Employee after the same are removed from the said property above described.

The Employee promises and agrees to pay monthly to the Company the consideration aforesaid, and also agrees that the same may be withheld by the Company out of any wages or other sums of money accruing to him from the Company, and that, in case of the termination of said right of occupancy from any cause, no moneys owing him from the Company shall be due and payable until he shall have vacated and surrendered to the Company possession of said property; and in case the Employee shall retain possession of the said property or any part thereof after the expiration, from any cause whatsoever, of his right of occupancy thereof, he shall pay to the Company the sum of two dollars (\$2) for each day he shall so retain possession, the said sum being hereby agreed upon as liquidated damages for such retention of possession, it being understood that said property is intended solely for the occupancy of employees of the Company and that the proper

conduct of its business requires that none but its employees and their families shall occupy the same; and any unpaid compensation, at the monthly rate aforesaid, for the right of occupancy, and compensation for damages, if any, to the said property shall be retained by the Company out of any such moneys owing to the Employee.

And the Employee further agrees that if during his employment by the Company he shall enter into possession of any other tenement house of the Company, with the consent of the Company but without a written agreement giving him the right to occupy the same, such other house shall be held by him upon the terms and conditions of this agreement, except as to the amount of monthly consideration, which shall be that customarily charged by the Company for such other house, or such as may be agreed upon between the parties hereto.

The Employee agrees to keep said property in good condition and repair, reasonable wear and tear excepted, and in a clean and sanitary condition and not to make any changes or alterations of said dwelling house, either inside or outside, nor build any addition to said dwelling house or erect any structure on said property or tear down and destroy the one already erected without the written consent of the Company, and the Employee agrees to give to the Company reasonable notice of any intention to vacate the premises covered by this agreement for the purpose of enabling the Company to make an inspection to see that said property has not been damaged and to inspect the sanitary condition of same, and the Employee further agrees to pay for any damage done to said property and to pay any sums necessary to place said property in a clean and sanitary condition upon his vacating same and hereby authorizes the Company to deduct from any moneys due the Employee a sufficient sum to pay for all damages and a sufficient sum to place said property in a clean and sanitary condition.

It is understood and agreed that the Employee shall pay for all gas, electricity or fuel used in or upon said premises and that the amounts that may become due for the same may be withheld by the Company out of any wages or other sums of money accruing to the Employee from the Company.

The Employee agrees not to use, allow, suffer or

permit the use of said land, or any part hereof, or any private way or private road upon the same, or any way, road or approach thereto, upon the lands of the Company, for any other purpose than that of ingress and egress from and to the public road for the Employee and members of his family, and not to do any act or thing or suffer or cause the same to be done whereby the public or any person or persons (other than the Employee and members of his family) may be invited or allowed to go to or trespass upon lands of the Company adjoining or near the lands above mentioned or ways leading thereto, or to or upon said lands.

And it is expressly agreed and understood that this agreement shall not operate or be construed to create the relation of landlord and tenant between the parties hereto under any circumstances whatsoever, and the Employee shall have no right to and covenants that he will not assign the right hereby granted without the written consent of the Company.

In the event the Company shall waive any breach of this agreement or any default on the part of the Employee, the same shall not be construed as a waiver on the part of the Company of any subsequent breaches or defaults on the part of the Employee of the same or any other clause of this agreement.

It is expressly agreed and understood between the parties hereto that the Company shall have the right through its agents to inspect the property above described at any time during the continuance of this agreement.

In witness whereof, the parties hereto have hereunto set their hands this day and year first above written.

..... COAL COMPANY  
By .....

WITNESS:

*Lease No. 2*

This agreement, made and entered into this the 1st day of January, 1946, by and between .....  
..... Coal & Coke Company, a corporation,

hereinafter called the Employer, and  
..... hereinafter called the Employee.

**WITNESSETH:**

1. As incident to the employment by Employer of Employee, and in consideration of the payments at the rate of ..... monthly, to be paid in semi-monthly installments on the regular pay days of Employer, to be deducted from the wages of Employee, or, if not so deducted, to be paid in advance, Employer permits the use and occupation by Employee of the following described property of Employer:

a. That certain tenement house, known as No. ...., on property of Employer and situated at or near ....., County, West Virginia,

b. That certain garage, known as No. ...., located at or near ....., County, West Virginia, to be used only for the storing of automobiles, trucks or motorcycles belonging to Employee.

Said tenement house and garage are hereinafter sometimes collectively referred to as "Premises."

2. It is distinctly understood and agreed by and between the parties hereto that the permission hereby given Employee to use and occupy said premises is incidental to the employment by Employer of Employee and in order that Employee may more conveniently perform his duties as the servant of Employer, and that such permission shall continue so long, and so long only, as Employee shall remain an active and regular employee.

In the event Employee shall voluntarily, or involuntarily, cease to be an active and regular employee of employer, or shall cease to engage himself in the active discharge of his duties from the pay roll of the Employer, the permission and privilege of Employee to occupy the premises and all his rights hereunder shall absolutely cease and determine, and in such case no notice shall be required.

Notwithstanding the above provisions in this paragraph 2 set forth, it is further distinctly understood and agreed between the parties hereto that Employer may terminate the permission and privilege hereby given Employee to use and occupy said premises by giving to him at least 10 days' notice in

writing of its intention so to do, addressed to Employee at his post office address as shown upon the books of Employer, or served by any of the modes of law provided for service of process to commence an action or suit under the laws of the State of West Virginia; and Employee may likewise terminate his use and occupancy of said premises by any of the methods mentioned in this paragraph 2, or by giving to Employer at least 10 days' notice in writing of his intention so to do, addressed to the Employer at ....., West Virginia, or served upon Employer by any of the modes provided for the service of process to commence a suit or action under the laws of said State.

3. It is further distinctly understood and agreed by and between the parties hereto that in the event the permission and privilege of Employee to use and occupy said premises shall be terminated in accordance with the provisions of paragraph 2 hereof, then Employee will immediately vacate said premises and surrender the possession thereof to Employer. In the event the permission and privilege of Employee to use and occupy said premises shall be terminated under the provisions of this agreement, then Employer may, and it is hereby given the right, to re-enter said premises and take possession of all of same; either with or without process of law. In the event of the termination of the permission and privilege of Employee to use and occupy the premises, as herein specified, and he shall have vacated said premises and delivered possession thereof to Employer, any sums paid by Employee for the use and occupancy of said premises for a period beyond the date of such vacation shall be refunded by Employer to Employee, calculated at the rate per month hereinbefore specified.

In the event the permission and privilege of Employee to use and occupy said premises shall be terminated, as herein provided, and he shall not have vacated said premises and surrendered to Employer the possession thereof, as herein provided, then Employee hereby grants unto Employer the right to enter upon said premises and take possession of the same, either with or without process of law, and without any notice of any kind, and to remove therefrom all goods and chattels of Employee without becoming liable to Employer for any damage

which may be done to such goods and chattels in removing the same, or in leaving same exposed to the weather; and Employee expressly agrees that Employer may use as much force as may be reasonably necessary, without violence or breach of the peace, in removing the Employee and his goods and chattels from and off of said premises.

No termination of this agreement or taking or recovering possession of said premises shall deprive the Employer of any right of action for any charge or for any damage against Employee, nor shall the remedies hereby provided exclude any others to which Employer might otherwise be entitled.

It is further understood and agreed that the provisions in this agreement contained as to terminating the same, shall take precedence over any inconsistent provisions hereof, if any such there be, and the fact that Employer has accepted payment in advance shall not prevent this agreement from being terminated, but the proportionate part of such advance payment shall be refunded, as hereinbefore provided, in cash.

4. Employee agrees to take good care of the premises while he occupies them, and covenants not to assign or sublet any part thereof, and not to take or shelter any boarder or lodger therein, without the permission in writing of the Superintendent of Employer, and a violation of this provision shall forthwith terminate this agreement without the necessity of notice from the Employer.

5. Employee covenants and agrees not to create, or permit to be created on the premises, any nuisance, and binds himself not to violate, or permit the violation on said premises, of any law of the United States of America, or the State of West Virginia, now in force, or hereafter enacted. Employee covenants and binds himself not to manufacture, sell, store, handle or possess upon the premises, or permit thereon, the manufacture, sale, storage, handling or possession of any intoxicating liquors, or any drug, liquid, or substance, the sale, possession, or manufacture of which is forbidden by law, and not to operate, or have, or permit the operation of, on the premises, any still or other apparatus or device, or any part thereof, for the manufacture of intoxicating liquors, drugs or substances, above referred to and not to have, or permit to be had on the premises, any

so-called mash, or other ingredient or process used in the manufacture of intoxicating liquors or other liquids, drugs or substances above referred to. Employee further covenants and binds himself not to allow, or harbor, on said premises any disorderly or disreputable person or persons, or any person objectionable to employer. Employee hereby expressly grants unto Employer the right to enter upon said premises and evict any and all parties objectionable to Employer that may at any time be found upon said premises.

6. No additions or changes to the premises shall be made by Employee, without the permission in writing of Employer, and it is understood and agreed that where additions or improvements of a permanent nature are made, they will become a part of said premises and must not be removed.

7. Anything herein elsewhere contained to the contrary notwithstanding, it is agreed that Employer shall not be responsible for any accident or damage to the premises, or any property of Employee, or any person or anything thereon or outside of the premises, resulting from any fault of Employer, or any defect in said premises, or for any negligence with respect to the same.

8. In case of injury to or destruction of said premises, or any part thereof, by fire or otherwise, this agreement shall thereby be terminated, and the Employer shall be under no obligation to rebuild or repair the same.

9. Employer, its agents or servants, shall have free access to said premises for the purpose of examining or exhibiting same, making such repairs as Employer may desire, or for any other lawful purpose.

10. Upon the termination of the permission and privilege of Employee to use and occupy said premises, he hereby agrees to deliver unto Employer said premises in good order and repair, reasonable wear and tear from ordinary and proper usage excepted.

11. Employee hereby authorizes and directs Employer, until further notice, to retain out of his wages earned by and due to Employee by Employer, the amount when due hereunder and apply the same to the payment thereof.

In testimony whereof, Employer has signed these presents in its corporate name by \_\_\_\_\_, its duly authorized Agent, and Employee has hereunto



set his hand and affixed his seal, as of the day, month, and year first above written.

..... COAL & COKE COMPANY  
By .....  
Employee .....

\* \* \* \* \*

Lease No. 3

THE ..... COAL CORPORATION,  
DEBTOR INCORPORATED

..... DIVISION  
TENANT LEASE

This agreement of lease made and entered into this, the ..... day of ..... 19.., by and between ....., hereinafter called "lessor," party of the first part, and ....., hereinafter called "lessee," party of the second part.

Whereas, the said Lessor is engaged in the business of mining, producing, shipping and marketing coal, and in order to accommodate its miners and other employees engaged in the business of mining said coal and operating the mines of the said Lessor, the said Lessor has now under its control and maintains certain houses on the land of the said Lessor, at and near said mines; said houses under the control of said Lessor are maintained for the sole purpose of providing suitable and convenient homes for said employees engaged in the operation of said mines and other business of said Lessor; it being necessary for the persons employed by said Lessor to reside in said houses in order to be convenient to the work which they are required to perform, and,

Whereas the said Lessee has entered into the service of said Lessor, and desires to occupy one of its said houses as an incident to and in connection with his said employment.

Witnesseth: That in consideration of the sums of \$..... House Rent per month; \$..... per month flat rate for lights; and \$..... per month for garbage can and sanitation; \$..... Stove Rent per month; \$..... Water Rent per month; \$..... Bath Rent per month, totaling \$..... per month, and in further consideration of the payment of ..... cents per thousand cubic feet for all gas consumed and ..... cents per KWH for

all metered electricity consumed during any month, when said gas and electric meters have been read by a representative of the Lessor, and their consumption established, said rates to be paid for the entire month, and the further consideration of the strict observation by Lessee of all the terms, conditions and stipulations hereinafter contained, Lessor has leased and let and by these presents does hereby lease and let unto said Lessee House No. .... at ..... for use by the Lessee and his family as a residence only, for such period of time but only for such period of time as he shall be and continue in the service of the said Lessor and faithfully observe, keep and perform each and all of the terms, conditions and stipulations herein recited by him to be observed, kept and performed.

It is understood and agreed by and between the parties hereto that the right and privilege so to occupy and use said premises is hereby given to said Lessee with his family because and only because of his being in the service of the said Lessor, and in order to better facilitate the work in which he shall engage for the said Lessor; and that in the event of such employment shall be terminated, whether by reason of the voluntary termination by the said Lessee or by reason of his discharge by the said Lessor, either for cause or without cause, or from any other cause, the right of said Lessee with his family to use and occupy said premises shall simultaneously end and terminate and he agrees to immediately vacate the premises, and upon his failure to immediately do so, the said Lessor shall have the right, without the necessity of giving notice and without liability for so doing, to remove said Lessee and his family and his and their goods and property from the premises.

For the right and privilege so to use and occupy said premises during the continuance of such employment said Lessee shall pay to the Lessor, rents and other fees both fixed and variable, each month when due; and the said Lessor shall have the right, and they are hereby authorized to deduct the amount of such payments from any sum or sums then or thereafter owing by said Lessor to said Lessee for labor or on other account, and the deduction of such sum or sums shall be equivalent to the payment thereof in cash to such Lessee; upon the default or failure of the

said Lessee to pay the said rents and other fees both fixed and variable, each month when due, for the use and occupancy of said premises, the said Lessor at its election, may without notice to the said Lessee, declare this agreement null and void and of no further effect, and thereupon the Lessee covenants and agrees to promptly and immediately vacate the premises and upon his failure to do so the said Lessor may re-enter without notice and take possession of the said premises and remove the said Lessee and his family and their goods therefrom without any liability therefor.

Lessee shall take good and proper care of the premises and preserve and maintain the same and the improvements thereon in as good repair as when received by him, fair wear and tear excepted, and he shall at all times keep the premises in a sanitary condition. Any damage done to said premises by said Lessee and/or his family may be repaired by the said Lessor and the cost thereof charged to the Lessee and deducted from any amount then or thereafter owing said Lessee by the said Lessor for wages or other account. No additions or alterations shall be made to or on said premises nor on any additional structures or buildings placed thereon, without the consent in writing of the said Lessor being first had and obtained, and all such additions or alterations so made to or on said premises and all additional structures or buildings placed on said premises shall immediately thereupon become the property of the said Lessor, without cost to them.

Lessee covenants that he shall not sell or permit to be sold any spirituous, vinous, or malt liquors, or permit any gambling or gaming of any description for money, or anything of intrinsic value, upon the premises, and that he shall not harbor upon nor permit the use or occupancy of the premises by any person or persons objectionable to the said Lessor. In event the Lessee should violate any of the covenants and conditions above named or fail to remove

any objectionable person from the premises upon notice from the Lessor, this lease shall immediately become forfeited, null and void at the option of the Lessor, and the Lessee shall immediately upon demand, vacate the premises, and upon his failure to do so, the Lessor shall thereupon have the right to enter and take possession of said premises and remove the Lessee and his family therefrom and any objectionable person who may at the time be upon the premises, without any liability therefor.

Lessee agrees that in the event he should be allowed to cultivate a garden upon the said premises, that said fact shall, in no wise, affect the tenancy in said house, created by this contract.

Lessor reserves and excepts unto itself and Lessee agrees that it or its agents do and shall have the right at any and all times to enter upon with full rights of ingress, egress and regress, in, on, to, and from said premises at any and all times for any and every purpose which it may desire; and the Lessee shall not have the right to assign this lease in whole or in part or to sublease said premises or any part thereof.

Lessee covenants and agrees that in event he should violate, make default or forfeit the lease under any of its terms, and failure on the part of the Lessor to declare such forfeiture or to take possession of the premises immediately or within a reasonable time thereafter, shall not be construed as a waiver by the Lessor of any subsequent default or forfeiture, whether for the same or any other cause.

In witness whereof, the parties have hereunto subscribed their names, the corporation by its officers duly authorized so to act, on this the . . . . . day of . . . . . , 19. . . . .

COAL CORPORATION  
By . . . . .  
(Division Manager—For Lessor)  
. . . . .  
(Lessee)

## SUMMARY OF BENEFITS OF STATE WORKMEN'S COMPENSATION LAWS

TABLE 53.—*Workmen's compensation—benefits for permanent and temporary total disabilities in major bituminous-coal-mining States—June 1, 1946*

State	Limitations on permanent total					Limitations on temporary total				
	Maximum percentage of wages	Maximum weekly payment	Minimum weekly payment	Time limit	Amount limit <sup>1</sup>	Maximum percentage of wages	Maximum weekly payment	Minimum weekly payment	Time limit	Amount limit <sup>1</sup>
Alabama.....	65	\$18; \$5 (actual wage if less) after 400 weeks.	\$5 (actual wage if less).	550 weeks.	\$6,000	65	\$18.....	\$5 (actual wage if less).	300 weeks....	\$5,400
Arkansas.....	65	\$20.....	\$7.....	450 weeks.....	7,000	65	\$20.....	\$7.....	450 weeks.....	7,000
Colorado.....	50	\$14.....	\$5.....	Life.....		50	\$14.....	\$5.....	Period of disability.	
Illinois.....	65	\$18; \$19.20 if 2 children; \$21.60 if 3; and \$24 if 4 or more children.	\$9.....	do.....	6,600	65	\$18; \$19.20 if 2 children; \$21.60 if 3; and \$24 if 4 or more children.	\$9.....	Period of disability.	6,600
Indiana.....	55	\$20.08.....	\$11 (actual wage if less).	500 weeks.....	7,500	55	\$20.08.....	\$11 (actual wage if less).	500 weeks.....	7,500
Iowa.....	60	\$18.....	\$8 (actual wage if less).	400 weeks.....	7,200	60	\$18.....	\$8 (actual wage if less).	300 weeks.....	5,400
Kansas.....	60	\$18.....	\$6.....	416 weeks.....	7,488	60	\$18.....	\$6.....	416 weeks.....	7,488
Kentucky.....	65	\$18.....	\$5.....	520 weeks.....	9,000	65	\$18.....	\$5.....	520 weeks.....	9,000
Maryland.....	66½	\$23.....	\$10 (actual wage if less).	Period of disability..	7,500	66½	\$23.....	\$10 (actual wage if less).	312 weeks.....	3,750
Michigan.....	66½	\$21.....	\$10.....	750 weeks.....	15,750	66½	\$21.....	\$10.....	500 weeks.....	10,500
Missouri.....	66½	\$20.....	\$6.....	300 weeks; thereafter 25 percent of wages for life.		66½	\$20.....	\$6 (actual wage if less).	400 weeks.....	8,000
Montana.....	66½	\$15; \$17 if one dependent; \$18 if 2; \$19 if 3; \$20 if 4; \$21 if 5 or more dependents.	\$8.....	500 weeks.....	10,500	66½	\$15; \$17 if one dependent; \$18 if 2; \$19 if 3; \$20 if 4; \$21 if 5 or more dependents.	\$8.....	300 weeks.....	6,300
New Mexico.....	60	\$18.....	\$10 (actual wage if less).	550 weeks.....	9,900	60	\$18.....	\$10 (actual wage if less).	550 weeks.....	9,900
Ohio.....	66½	\$24.50*.....	\$10 (actual wage if less).	Life.....		66½	\$24.50*.....	\$10 (actual wage if less).	312 weeks.....	4,200
Oklahoma.....	66½	\$21.....	\$10 (actual wage if less).	500 weeks.....	10,500	66½	\$21.....	\$10 (actual wage if less).	300 weeks.....	6,300

Pennsylvania	66½	\$20	\$10 (actual wage if not under \$5).	do.	10,000	66½	\$20	\$10 (actual wage if not under \$5).	500 weeks	10,000
Tennessee	60	\$18	\$7 (actual wage if less).	400 weeks; thereafter \$7 (actual wage if less) for additional 150 weeks.	5,000	60	\$18	\$7 (actual wage if less).	300 weeks	5,400
Utah	60	\$22.50 plus 5 percent for each child (not to exceed 5).	\$10	260 weeks; thereafter 45 percent of wages during disability.	8,500	60	\$22.50 plus 5 percent for each child (not to exceed 5).	\$10 (actual wage if less).	313 weeks	8,500
Virginia	60	\$20	\$6	500 weeks	7,800	60	\$20	\$6	500 weeks	7,800
Washington		\$11.54; \$13.85 for married employee plus \$3.46 for youngest child; \$2.31 for next child; \$1.73 for each additional child. <sup>4</sup>		Life.			\$11.54; \$13.85 for married employee, plus \$3.46 for youngest child; \$2.31 for next child; \$1.73 for each additional child. <sup>4</sup>		Period of disability.	
West Virginia	66½	\$18	\$10	do.		66½	\$18	\$10	156 weeks	2,808
Wyoming		\$12.69; \$17.77 for married employee, plus \$3.81 for each child.		Period of disability	\$12,650		\$12.69; \$15.23 for married employee, plus \$2.34 for each child; total maximum \$27.92.		Period of disability.	

SOURCE: Division of Labor Standards, U. S. Department of Labor.

<sup>1</sup> Total maximum payments computed where not stipulated by law.

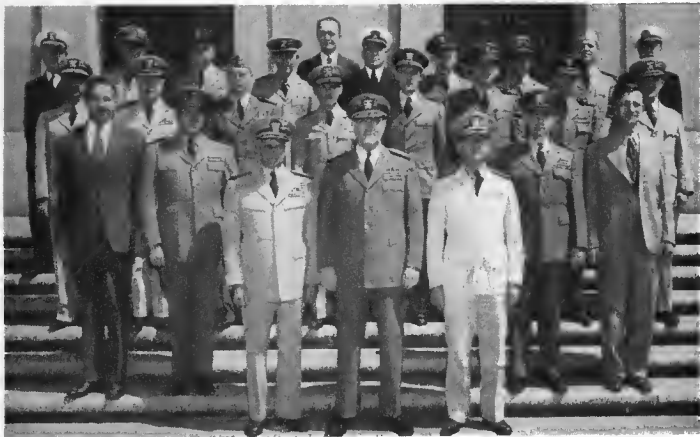
<sup>2</sup> Thereafter annual pension for life of 12 percent of previous payments in specific case of permanent total disability, 8 percent of such amount in other cases.

<sup>3</sup> For period ending Sept. 30, 1947.

<sup>4</sup> Special schedule of monthly payments for first 6 months of disability for married or widowed employee ranging from \$22.50 for childless woman whose husband is not an invalid to \$75 for married workman or widow with 2 children plus \$7.50 for each additional child. Additional allowance for constant attendant if necessary.

<sup>5</sup> Maximum for workman \$6,000, and for children \$6,050.

<sup>6</sup> Additional compensation for constant attendant if necessary.



MEDICAL SURVEY GROUP, COAL MINES ADMINISTRATION, WITH ADMIRAL BEN MOREELL, FORMER COAL MINES ADMINISTRATOR

Left to right: (front row) Rear Admiral Joel T. Boone (MC) USN, Director; Admiral Ben Moreell, Commodore Charles T. Dickenson (CEC) USN, Engineering Adviser; (second row) Allan Sherman, Public Relations Officer, Commander M. Amberson (MC) USNR, Medical and Sanitation Adviser; Commander John H. Balch, USNR, Administrative Aide; Russell W. Lee, Photographer; (third row) Commander Dennis H. Reffman, Jr., USNR, Recreation and Welfare Adviser; Commander Karl J. Palmberg (MC) USN, Commander J. M. van Hulsteyn (CEC) USNR; Commander Frank Philbrook (MC) USN; Commander William J. Dougherty (MC) USN; Commander D. R. Dorsey (CEC) USNR; Commander J. P. Shronts (MC) USNR; Commander P. T. King, USNR; (fourth row) Commander John R. Gateley (MC) USNR, Lt. Comdr. Glen S. Buie (CEC) USNR, Lt. Comdr. E. F. Philpott (CEC) USNR, Lt. Comdr. R. L. Wright (CEC) USNR; Daniel McCoskey, Information Assistant; Lt. Comdr. J. P. Farrell, USNR, Lt. A. B. Lyon, USNR, Lt. Carl A. Nastri, USNR; Lt. Comdr. Charles J. O'Neill, USNR; and Lt. Charles E. Curtis (HC) USN. (Photograph taken July 1946)

#### PERSONNEL OF MEDICAL SURVEY GROUP

Director . . . . .	Rear Admiral Joel T. Boone, (MC), USN.
Adviser on engineering . . . . .	Commodore Charles T. Dickenson, (CEC), USN.
Administrative aide . . . . .	Commander John H. Balch, (S), USNR.
Special technical advisers . . . . .	Commander Julius M. Amberson, MC (S), USNR. <sup>1</sup>
	Commander John F. Shronts, MC (S), USNR. <sup>1</sup>
	Commander Thomas H. Rickman, Jr. (S), USNR. <sup>2</sup>
Adviser on recreation . . . . .	Mr. Allan Sherman.
Adviser on public relations and editor-in-chief . . . . .	Lt. Charles E. Curtis, (HC), USN.
Statistician . . . . .	Mr. Russell W. Lee.
Photographer . . . . .	

#### MEMBERS OF FIELD TEAMS

Team No. 1: Commander Frank R. Philbrook, MC (S), USN, Commander Edward T. King, (S) USNR.<sup>3</sup> Lt. Comdr. Ralph L. Wright, (S) L, USNR, Lt. William H. McCachren, (S) L, USNR, Alfred B. Haskell, CY, USN,<sup>4</sup> S. T. Zagorski, CY, USN.

Team No. 2: Commander Karl J. Palmberg, (MC) USN,<sup>5</sup> Commander Daniel R. Dorsey, (CEC) USNR,<sup>6</sup> Lt. Comdr. Paul D. Bilyer, (CEC) USNR,<sup>7</sup> Lt. Arthur B. Lyon, (D) L, USNR, Herbert W. McKague, CY, USN.

Team No. 3: Commander John F. Shronts, MC (S), USNR,<sup>1</sup>

Commander Julius M. Amberson, MC (S), USNR,<sup>1</sup> Lt. Comdr. Glenn S. Buie, (CEC) USNR, Lt. Comdr. Charles J. O'Neill, (S) USNR, Charles B. Cook, CYA, USN.

Team No. 4: Commander William J. Dougherty, (MC) USN, Commander John M. van Hulsteyn, (CEC) USNR, Lt. Comdr. James P. Farrell, (S) USNR, R. A. Philbert, CYA, USN.

Team No. 5: Commander John R. Gateley, (MC) USN,<sup>1</sup> Lt. Comdr. Euel F. Philpott, (CEC) USNR, Lt. Carl A. Nastri, (D) L, USNR, Alfred E. Stringer, CY, USN.

There also were a number of staff assistants, statisticians, secretaries and typists who rendered valuable service.

<sup>1</sup> Commander Amberson relieved Commander Shronts as medical officer of team No. 3 on September 7.  
<sup>2</sup> Relieved Commander King, July 18.

<sup>3</sup> Transferred to field July 18, detached August 3.  
<sup>4</sup> Transferred September 16 and relieved by Zagorski, CY.  
<sup>5</sup> Detached September 14.

<sup>6</sup> Relieved September 14 by Lt. Comdr. Bilyer.  
<sup>7</sup> Reported for duty August 21.  
<sup>8</sup> Detached December 10.

The Coal Miner  
AND HIS  
FAMILY

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*Supplement to the Report*

## The Coal Miner and His Family



Scattered throughout more than twenty States in the Union, there are people to whom the pick, shovel, and drill are the symbols of livelihood, to whom the ripple of a coal mine is both a monument to bloody strife and a promise of economic security. These are the soft-coal miners of America. Highly indi-

vidualistic, yet bound together by a common isolation, steeped in tradition but yielding to the forces of mechanical progress, uneducated but as intelligent as the average American, they form a mass of human beings upon whose labors the industrial motion of the Nation depends.

From the steep valleys of the Appalachians to the rocky, rugged mountain peaks of the West, they toil beneath and on the surface of the land to recover from the earth the solid black lumps that are translated for mankind into heat, light, and power. Most of them, however, work and live in the hollows and valleys that extend along the Appalachians from north central Pennsylvania, across the whole of West Virginia, through eastern Ohio and eastern Kentucky, southwestern Virginia, and eastern Tennessee, into northern Alabama. In this mountain range, and amidst the rolling farm lands of the Central States and the high plateaus and canyons of the Rockies, the native born and the foreign born, the white and the black, work side by side in a diversity of occupations that are commonly classified as those of a bituminous-coal miner.

Miners are like other industrial workers, but bear in general a closer kinship with the toilers of the soil. Like other workers, they too have their tribulations and their aspirations; perhaps a greater share of misfortune and a lesser share of hope. They are a realistic group of people, inured to the hardships of their vocation.

Miners have at once a bravado and a horror of the hazards inherent in coal mining. Each year their ranks are diminished by about 900 to 1,250 men who lose their lives through accidents, and each year some 50,000 more suffer injuries, some of which incapacitate them for long periods of time.

Yet the miners like their work. The older ones, and especially those who labor in mines that have not yet yielded to mechanical loaders and other brain children of the efficiency experts, take particular pride in their craftsmanship. They feel in digging coal a stirring challenge from Nature—a pitting of human skills against the resistance of the earth.

Strange as it may seem to others, coal miners find a satisfaction in working their man-made caverns. Underground the temperature is equable. To paraphrase the postman's adage—neither the enervating heat of summer nor the biting cold of winter, nor wind, rain, sleet, or snow interferes with their appointed rounds. The darkness bothers them not, and they seem to enjoy the relative freedom from the distractions and furies of the upper world.

Mining is an old occupation, recorded in the jour-

nals of antiquity; and in the United States the winning of coal had its beginning prior to the Declaration of Independence. The exploitation and development of the major coal fields of America that parallel the industrial growth of the Nation attracted and gave employment to men from abroad during the great periods of immigration. Englishmen, Welshmen, Scotsmen, miners themselves and sons of miners; Finns, Italians, Greeks, Magyars, and Slavs; and others who came to America's shores went to work in the coal fields. A large number of American-born, many of them the sons of the early pioneers who crossed the Cumberland Gap and migrated to Ohio, Kentucky, Indiana, Illinois, and other States, forsook the plow for the pick. Then, too, many Negroes, in their search for economic freedom, sought out or were brought into the coal fields.

The discovery, exploitation, and mining of coal contributed greatly to the growth of the Nation as an industrial power, yet the miners themselves, as though unaware of their share in the progress of civilization, limit their pride to the conquest of their craft and to the success with which they support themselves and their families. For many, the horizon extends only to the ridges that mark the boundaries of the coal camps.

Except for some farming, most coal miners have had little if any experience in other occupations, primarily because of their isolation and the paucity of opportunity for other work in the areas in which they live. The majority of them live and work in places where coal production is the sole industry. The perimeter of their migrations, prior to the war, has been restricted, especially in the hills of eastern Kentucky, West Virginia, southwestern Virginia, and Tennessee. Many miners and their antecedents for generations back have never moved beyond the county line or at most over into the adjoining county.

Miners are haunted men. Their minds are vexed with the memories of bloody struggles for higher pay and for the preservation and growth of their labor union. Their thoughts are constantly troubled by insecurity of work, for they know that, although the calendar year contains 365 days, they have worked as little as 142, and only nine times out of the last 25 years have they averaged more than 200 days a year. Their hearts grow weary repressing the importunate



warnings of the dangers that lurk underground which may at any time cut them off from livelihood. Their families silently share these burdens.

Who is the typical coal miner? He is a humorous Yorkshireman in Pennsylvania, a gregarious Pole in Wyoming, a taciturn mountaineer in Tennessee and Kentucky, a melancholy Navajo in New Mexico, a penurious Japanese in Utah, an outspoken war veteran in Illinois, a part-time farmer in Oklahoma, a

smiling Mexican in Colorado, a benevolent Negro in West Virginia. He is a Democrat; he is a Republican. He is a provincial from the hills, and an urbanite from Pittsburgh, Fairmont, Birmingham, Springfield, and Denver. He is young; he is middle-aged; he is old. He is all of these, and more. He is typical only in the sense of being another industrial laborer sharing a vocation with 400,000 other citizens across the American Continent.



America's coal deposits lie in some of the most beautiful parts of the country. Nature's handiwork, however, has been greatly modified by the enterprise of heedless men. Many valleys, once clean and scented with pine, poplar, and hickory, now are filled with the belchings of locomotives and a floating haze of grime. Streams that once sparkled and hurried now are choked with silt and sewage. Hillsides, once pristine and covered with green, now are scarred with gaping holes, waste dumps, and raw gashes that serve as roads, and are checkered with buildings, houses, shacks, and privies. In such valleys, alongside such streams, against such hillsides, amidst such smoke and grime, rest many company-owned mining "camps" in which bituminous-coal miners and their families live.

Life in a coal-mining community, like life in other communities, follows a routine, but the pattern is a special one. The doings of the miner, his wife, and his children are synchronized with the action of the tippie.



The coal miner's day begins before the rooster crows and city lights begin to dim. For the man who works during the morning shift in mines that operate 2 or 3 shifts, and for the man that works in a single-shift mine—this takes in more than 9 out of every 10 miners—the sun has not yet risen when he awakens. The starting time at the mine may be 6:30 or 7:00 o'clock or even a little later in the morning, but the travel time from the bedroom to the working room is long. Up he gets in the darkness, or in the faint twilight of dawn, dresses, and washes himself quickly, moving about the house quietly lest he arouse his children.



Mining is hard work, and for the miner a substantial breakfast is a necessity. There are no canteens, snack bars, or coffee shops underground to supplement a hastily eaten morning meal. The kind of food that provides energy for heavy labor is needed. Fried chicken, or perhaps a slice of fried ham, with plenty of biscuits and potatoes, and lots of hot coffee are not too much for a man with a day's mining to do, and for his wife with heavy chores ahead of her.

But there is no lingering over the morning meal. The miner snatches his lunch bucket, already packed by his wife, and off he goes without a backward glance.

Arriving at the mine entrance, he checks in, and receives an electric cap lamp, although at a number of mines the old-fashioned, dangerous, open-flame carbide lamp is still in use. If he is not already in his working





clothes, he changes to them, provided, of course, that a change-and-wash house is available at the mine.

The wash house is an informal meeting place. The men who gather here are all miners, yet they represent a great variety of specific occupations. Most of them are *inside* men, that is, men who work underground inside the mine proper. These men are the ones who undercut the coal with picks or special coal-cutting machines, drill holes in the solid face of the coal for explosives to be placed, blast the coal down, and load the coal, either by hand or by machine, onto coal cars or conveyor belts.



Each man may specialize in one phase of work, or in some mines may do all or a number of different jobs. Working with them are the motormen and brakemen, and other transportation men who bring empty cars for the loaders to fill and haul the full ones out of the mine. To make the mine workings accessible and to avoid delays as more and more coal is mined out, trackmen lay tracks as the working places advance deeper into the mine; timbermen set posts to bolster the roof (which is the term that miners use for ceiling); and electricians, machinists, pipemen, and various others do maintenance work.

Some of the men are *outside men* who work at the tippie, dumping the mine cars and shifting the railroad car under the tippie, or work in other places on the surface as engineers, machinists, carpenters, firemen, and blacksmiths.

Miners are also classified in another way—as *company men* or *day men*, because they are paid on a daily basis; and as *tonnage men*, because they are paid on a piecework basis, so much for so much coal produced.



When the miner has changed into his working clothes, he waits with his fellow workmen for the man-trip, the train ride into the mine that carries them from the portal to their working places, a ride that frequently may be as much as four or five miles long or even longer, depending on how extensive the mine workings are. Where the mine is deep, he waits at the bottom of the shaft after the cage (elevator car) has taken him down. Where the entrance to the mine is level with the surface, as in slope or drift mines, he waits on the outside. Through the long, subterranean entries (passageways), which are dark, except for the glare from a trolley or battery locomotive headlight, he is carried, along with his buddies, to his station underground.

In many small mines, however, it is common for him to make his way to his working place on foot. Along the main entries he walks, stooped over where the coal seam is thin and the roof is low, and on all fours as he approaches his working place where the seam may be very thin and there is very little headroom.







Once at his working place there begins the grueling job of getting the coal blasted down, loaded, and hauled out of the mine. The operations follow a regular cycle. Knowing that falls of roof, or top, are the most frequent cause of injuries and deaths in the mine, the first thing the careful miner does upon entering his working room and approaching the solid coal, or face, as it is called, is to test the roof to see if there are loose slabs of coal or slate. To be safe, he sets some timbers (posts) to help support the roof.

Then the undercutting machine comes in. This machine cuts a long slice in the face of the coal, usually along the bottom. This is done in order that the coal may be blasted more easily and safely. It also helps to keep the coal from shattering.

Next, holes are drilled in the face of the coal for the explosive charges to be put in. Electric drills are generally used, although hand drills are by no means uncommon.

The explosives are placed in the holes and stemmed with incombustible material to prevent the shots from blowing out of the holes. After the





shots are fired—that is, exploded—and the coal is brought down, the job of loading begins.

The hand loader must have a strong back. Shoveling ton after ton of coal into the empty mine cars which are brought to his room is arduous work. Where the coal seams are very thin, he performs this task half-lying on his side; in places where there is a little more headroom, he does the job in a stooped-over position or while on his knees.

However, in some mines, especially the larger ones, he may use a loading machine which enables him and his buddy to load 5 to 10 tons of coal in a matter of minutes. In most mines, hand loading is still prevalent, although more than half of the coal mined in the United States is machine-loaded.





Lunch time is not regular underground. The miner eats whenever he feels hungry and whenever it is convenient for him to do so. He eats by himself, or, sometimes, with his companions, sitting along the bottom (floor) with his back leaning against the rib (side) of the room, or perched on a pile of gob (slate or other waste material), or on a bench, if it happens to be handy.

The miner who works on a tonnage basis can leave the mine whenever he feels that he has done a day's work. He may leave after 5 or 6 hours' work, or he may decide to work as much as 10 hours on a particular day.





He may continue to stay in his room, even after the daymen have left, or even on some days when the tippie is not working. The day miner works about 7 to 9 hours, depending on the travel time from his working place to the portal, and then leaves to make way for the men on the next shift, where there is a second or third shift.

It is mid-afternoon as he leaves the mine. He dumps the carbide from his open-flame light, or proceeds to the lamp house to check in his electric cap lamp and battery. Then, if he is among the fortunate ones who work where there is a wash house, he goes there to clean up and change his clothes.







The miner who lives in the company "camp" trudges homeward. Others ride by private car, public bus, or perhaps, by company-owned bus to their homes farther away in the country, or in nearby towns.

It is not unusual for the miner on his way home to stop off at the company store to buy a package of cigarettes, a soft drink, or some groceries for his home.



A moment's pause at the end of the working day, before supper is ready, is not amiss. A miner can think on many things as he rests and gazes reflectively at the world about him. He might think about the many times when he has been out of work because of strikes, or because the mine was shut down owing to a lack of railroad coal cars or lack of ready markets for its coal. He might think of his home and his family, and of the various mining camps where he has lived and worked. He has not been happy. He has not been happy over his present house even though he has heard his wife say: "It hain't good, but I like it here. I'm used to hit; and we got so many friends here." He wonders angrily why the "boss" doesn't fix the foundations and the porch—he has complained about it so many times—and then he thinks that maybe, when he gets a chance, he'll fix them himself, even if it isn't right that he should do so.

Living, as he does, in a camp that might be described as more or less average, he probably does not realize that he has been spared the ordeal and degradation of having to reside in the squalor of one of the worst of the coal-mining communities, which are made up of an assortment of unpainted, mouldering shacks set in a broad plot of muddy soil and mine waste, and surrounded by garbage, animal wastes and malodorous filth. On the other hand, he may not be aware of, or never may have seen, mine communities composed of attractive houses surrounded by green lawns,







and set close to clean, paved roads that lead to parks and playgrounds and movie theaters and other recreational facilities. This miner knows only camps, like his own, with monotonous rows of houses and privies, all in the same faded hues, standing alongside the railroad tracks, close to a foul creek; or camps, like ones farther up the valley, with their scattered houses on stilts, perilously perching, with their privies behind them, on steep hillsides. The miner lets his mind dwell momentarily on a vision of a small home of his own, with land about it, such as some miners own. He dreams of escape, escape from his job, escape from his unpleasant thoughts, escape from his sordid world; but he stays on.



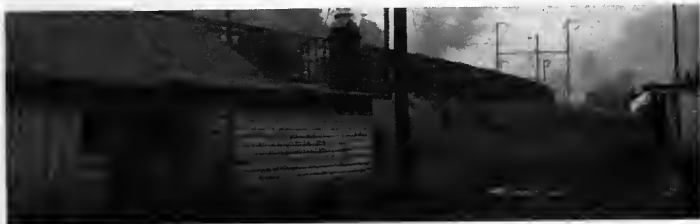


Daydreaming is a luxury, however. A warm bath for the weary miner would perhaps remove discouraging thoughts from his mind as well as coal dust from his body. And so his wife, with water she has pumped up from the well and heated on the kitchen stove, prepares his bath in a galvanized-iron wash tub, set on a chair or on the floor. The younger children who are not away at school have been sent outdoors to play while the miner undresses. The usual procedure, where there is no regular bathtub or shower in the house, is to kneel down in front of the tub and sponge the body with a rag or towel dipped in the basin, but the more agile and ingenious miner stands or sits in the tub, sometimes improvising a shower with the aid of a pitcher or smaller basin. The miner's day is virtually over, and he can now dress cleanly and relax.





For the miner's wife, however, the day is far from over. She has risen, before her husband, with the first clamorous notes of the alarm clock, to prepare his breakfast and thus commence a long, tedious round of household duties. The miner's wife living in a coal camp does not differ much from her sister in the country or her city cousin in the nature of her chores, but she has more dirt to fight and less equipment to fight it with. And the incessant dirt, a native blend of coal dust from the tippie, smoke from the railroad, dust from the roads, sand, grime, and acrid fumes from the burning slag heaps, permeates and clings tenaciously to the structures and furnishings of houses and to human bodies. It takes





will power, determination, and persistence on the part of the miner's wife to hold her own in this unending struggle, particularly in the camp where the houses may be akin to sieves. Many housewives give up after years of fruitless battle. Many, without any conception of better standards or training in homemaking, never try, even where the conditions in







their favor are of the best. Others, spurred by self-respect, pride, and devotion to their families, maintain their homes and care for their households with a zeal that is limited only by their energy. Their housekeeping and homemaking are models of excellence, regardless of the shabbiness or attractiveness of the house structure itself.





If there were but one device on the banner of the miner's wife, it would be the wash tub with crossed broom and mop. The dirt in the average mining camp makes it so. Housekeeping is easier in the summer-time; and if the tipple is working, hope is quick when the hills are green and there is a chance for an energetic family to have a garden; but in the wintertime when the barometer is low and the grime hangs like a pall over the camp, and the yards and roads turn into muddy quagmires, and the cold winds sweep through the breaches in the doors, floors, windows, and walls, the miner's wife must show spirit as well as resolution and skill. That is the time when the "miseries" show up. The housewife, mornings, builds a fire in the grate and lights the kitchen stove. In the winter evenings and during the day, the family huddles about the grate, stove, or space heater, except in the better camps where a modern, central heating system exists.

Although laundering, cleaning, cooking, and caring for children constitute the major activities of housewives in the same economic class everywhere, the miner's wife living in a coal camp has less chance to escape the monotony of her routine. There are no career women to speak of in the coal fields. There are no other industries in which she may find part-time employment. There are virtually no women's clubs, or union meetings, in which she can participate. There are few organized



social functions. There are virtually no telephones in the homes to be used for pleasantly idle conversation. Although modern appliances, like vacuum cleaners, electric refrigerators, semiautomatic washing machines, electric irons, and gas-fired cook stoves, are available to her, and they are by no means uncommon even in the most isolated coal fields, they can relieve only the drudgery of her tasks but not their stultifying monotony.





They permit her only to have more free time in which to do more work, or more time for aimless calls on her neighbors, and more time in which to be appalled by the nothingness of her surroundings.

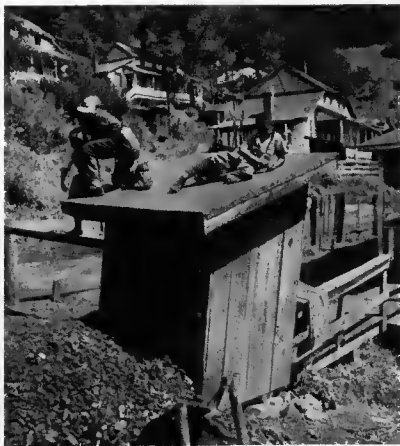


The miner's wife is not familiar with the basic principles of nutrition. She buys and feeds her family the traditional diet in her part of the country, and that happens to be less scientific than the diet of urban industrial families. She buys what is most readily available in the company store, or the small, competitive, independent grocery, where she does the major share of her shopping. Canned goods and dried foods comprise a substantial part of nearly every home meal. Sausage meats, beef and pork cuts, especially chops and fat back, are frequently found on her table, but lamb and mutton are seen less often. Potatoes, if they are cheap enough, and some fresh vegetables when in season supplement the menu. Lard, baking powder, and flour or corn meal are staples in the miner's home.



Milk—that is, fresh milk—which used to be a luxury item in the mine family's diet, now is consumed more regularly. The miner's wife buys pasteurized milk in the store, but in some places she may prefer, or may have to obtain, raw milk from the local one- or two-cow dairy; or possibly from the family cow. When times are good, she likes to raise her own chickens and hogs.

Also lacking in the culture of the miner's wife is a full enough appreciation of health and hygiene. So habituated is she to the pollution of the garbage-strewn creek running through the camp, to the pungent odors of the burning waste dump, to the foul stench of the backyard privy and dung, that she is not troubled by the seepage from the privy that trickles through her back yard or the fact that the water in the well or spring may be contaminated. She has protested, but has since ceased to care, about the absence of screens on the windows of her house. She regards the flies not as disease carriers but merely as pests that annoy her children.





She simply does as her neighbors do—she flings the dirty wash water and slops onto the ground from her back porch; she carries her gathered garbage to the burning slag piles, if she is not saving it to feed to the hogs; and she distributes a few pieces of flypaper about the house to catch some of the flies and, on occasion, pursues the remaining flies, bugs, and mosquitoes with a swatter.

When illness strikes the household, she has a doctor to call, not by telephone for she has none, but by messenger, a child or a friendly neighbor. Under the traditional prepayment plans for medical care which are in vogue in the coal fields, whereby a small amount is "checked off" from her husband's wages each pay day, the family in the coal camp is entitled to the services of a physician who comes to the house when it is not possible for the patient to go to his office.

Whether the miner's wife lives in one of the few worst camps where not even a shallow well has been dug and water must be obtained from open streams or from springs high up on the hillside, and where the garbage is normally thrown into the stream or dumped into a gully or hollow a short "piece" up the road; or whether she lives in one of the "model" camps, where the water is filtered, treated, and piped into each house and the garbage and sewage are collected systematically, she has one advantage over her country sister in that she has the benefits of electricity. Because the mine operations themselves require liberal amounts of electric power, electricity is made available to virtually all company-owned houses. And for this, the miner's wife is grateful.







The miner's children are pretty much like children everywhere. They reflect the standards and customs, and the insecurity of their parents, except as their thinking and habits are modified by growth in the peculiar environment of the coal-mine community. The miner's children are blissfully unaware of the material things and other advantages that are available to children in the Nation's metropolitan areas and in a majority of small incorporated towns and villages, including even some coal-mining camps. They lack most of all the playgrounds, paved areas, and swimming pools, and group activities like the boys' clubs or 4-H Clubs that are nurtured by organized leadership. They miss, especially in the winter, the indoor facilities, like clubhouses and gymnasiums, which provide shelter and also foster companionship and sport.

During the 7, 8, or 9 months of the school year, like children elsewhere in America, they set out after breakfast for the schoolhouse. The younger ones walk along the railroad spur, which is the main travelway in many camps, or along the highway, to the grade school which generally is situated within the camp. The older ones travel by county-school bus or company bus to the high schools, which usually are in the nearest town.





Inasmuch as so many of the coal-mine communities are in rural areas, the younger children attend schools that are typical of the country school. The children, for the present, are crowded together because of lack of space and the shortage of teachers. Their curriculum is limited virtually to the three "R's". They have very little of arts and crafts or subjects such as domestic science.









These children in more than half of the coal camps have been reached by the national school-lunch program. The youngsters who are benefited by the program obtain at least some milk, often some sandwiches and perhaps dessert in addition, and, where facilities are available, a hot lunch. The others bring their lunch with them, which they eat in some favorite spot in the school yard when the weather is good.

The miner's children, under the school health program, generally are vaccinated early against smallpox, and sometimes they are also immunized against other diseases. For this service they go to the office of the "company" doctor, who possibly already has immunized these same children, when they were babies, against diphtheria.



After school and during their vacations, the miner's children have their share of chores to do. The universal errand is shopping for their mothers in the company store. Under the customary system in mine camps where credit, sometimes in the form of scrip, is freely advanced against the miner's earnings, the children, with their parent's consent, have easy access, in a manner of speaking, to the family pocketbook. Coupled with the miner's generosity and the temptations in the way of confectionery displays, it is no wonder that the children are substantial consumers of soda pop, ice cream, and candy. Fetching water from the spring or well is another common, and probably the most frequent, task.









While the girls are helping their mothers with the washing or taking care of the baby, the boys might be chopping wood or bringing into the house some of the coal from the pile that has been dumped in the front yard by the company truck.



The miner's children play the same games and indulge in the same sports enjoyed by children elsewhere, except that their activities are limited by the facilities and terrain. Some sports are virtually unknown, as for example, roller skating, which is possible only where there are paved areas or commercial skating rinks. Their pets are woodchucks and squirrels, as well as cats and dogs. Their games of marbles are rural versions. They sometimes go long distances to find places large and flat enough to play softball, baseball, football, and similar games. They make good use of playgrounds in the relatively few camps where such facilities are provided.

The youngest children find the underside of the house a favorite play site, while those of school age make more use of the beautiful countryside. The boys, being fond of woodcraft and camping, become Boy Scouts; and the girls exhibit similar interests, but only if they live in certain camps have they the opportunity of becoming members of Girl Scout troops, 4-H clubs or the like.





The teen-agers, those beyond grade-school age and before marriageable age, develop a high degree of boredom. For them, the coal-mine community generally offers the least. The most difficult time is that following graduation from high school when the boys, as yet, are too young to get a job in the mine and the girls are without imminent prospects of marriage. The opportunities for employment are meager. The girls try to get a job in the company store or in the company office or in the local post office, but the competition is keen. The boys try for jobs at nearby filling stations or in the nearest towns. Both girls and boys find a dearth of wholesome amusement. The boys do as much hunting and fishing as they can afford, often with their fathers; the girls help around the house. Both boys and girls yearn to leave the community. The miner's children would probably do more swimming, but the ole swimming hole is polluted; they would like to do more reading, but there is no local library; they would like to go to dances, but there are so few in the camp. In the





best camps, there are excellent swimming pools, fine bowling alleys, gymnasiums, drug stores where one can sit around and have a "coke," beauty parlors, barber shops, billiard halls, some organized dances, and in a few places, libraries, and even some fine country clubs with golf courses.







Suppertime comes early for the miner and his family in the mine camp when the miner works on the morning shift. After the miner has cleaned and dressed himself for the evening, the children are called in to wash themselves. The evening meal may be light, or heavy, as local custom dictates.

After supper, the miner smokes a cigarette or his pipe, while his wife washes the dishes. The radio is turned on while he reads the news-





paper. He may play a while with the small children before they are put to bed. The older ones study their school lessons. If his buddy or a friend has been injured, the miner may ride into town to visit him at the hospital. It might, however, be the night for a union meeting. On the other hand, he may just spend the evening cleaning his hunting gun, mending his fishing tackle, or just sitting and talking. The family goes to bed early.







Saturdays and Sundays in a coal-mining community seem long, except in times when the tipple works regularly on Saturday and the miner goes to work that day to earn time-and-a-half pay. The week ends seem long, too, because the miner generally has more leisure time than he cares to have. Work in the mine is usually so uncertain and so irregular that he cannot plan his leisure either effectively or constructively. On many a day when the mine is idle, he wanders about the house aimlessly, does a little fixing and papering, sometimes goes hunting or fishing, or, most often, occupies his favorite spot on the stoop of the company store and office, discussing the news and engaging in friendly arguments with other men in the camp who have come there for the same purpose.





Saturday—every other one—is also pay day. He lines up with his fellow miners to receive his pay, or rather what remains from his pay after deductions have been made for store debits, rent, utilities, union dues, medical care, hospitalization fund, burial fund, and other items. He verifies his pay statement, studying it carefully and thinking that since most of his living expenses have been accounted for, what is given to him in cash may be spent, if he feels like it, for amusements, luxuries, and some other items he has in mind.





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CHARGES

Paying	1000
Wire Account	1000
	500
	10
	23
	140
	25
	10
Cash Advanced	
Motor Special	75
Car Charge	
Special Charge	
Building Tax	
G. A. B. Tax	150
Chase Duty	
Food License	2000
Special Charge	1000
Auto	
Auto	



On any Saturday when the mine is idle, and there is cash in hand he may go with his wife and the older children into town. They walk along the tracks, since that is the shortest route, or, if he owns an automobile they ride, but as often as not they go by public bus. Window shopping is fun, and the blandishments of the miner's wife or of his children often lead him inside a store. Clothing, house furnishings, and luxury items which are unobtainable at the company store or which seem to be cheaper are what attract them. If the miner is a drinking man, the town is also the place to obtain liquor (provided the county is wet); or perhaps he might stop in for "a short one" at a public bar. The youngsters meanwhile detach themselves to go to a motion-picture show.









Sunday is the universal day of rest in a coal-mining community. Nearly every camp has a place of worship accessible by the miner and his family. The miner's wife, however, is a more regular churchgoer than her husband.

Early Sunday morning the miner's younger children are the first to leave the house for church. For them, church services, and particularly Sunday School, are an event of importance. Dressed in their finest clothes, which is an event of importance in itself, they listen attentively as the heroes of the Bible are verbally paraded before them.

Virtually every Christian denomination is represented in the coal-mining community. A large camp, employing 1,500 to 2,000 miners, may contain as many as 5, 6, or even more churches, including a Roman Catholic, possibly a Greek Orthodox, and several Protestant churches, 1 or 2 of which might be used exclusively by Negroes. A small camp may



have only one church (if any), which would be either nondenominational or of a denomination representing the faith of the majority of the miners; and if the camp is not large enough to support a full-time pastor, services might be conducted either by a part-time miner-preacher or, on alternate Sundays, by an itinerant preacher. Sometimes a schoolhouse is used for church services. While orthodoxy prevails, here and there, especially in the more isolated areas, new sects that have sprung up seem to flourish.





On Sunday the miner might find the idle talk with his buddies resolving itself into a game of cards. In fair weather, particularly in the heat of summer, he and his buddies might go off into the woods, and there, under the shade of the trees, play games of chance on the ground. In a number of camps, baseball teams have been organized, and when the local ball club has a home game, or if the team from a neighboring camp has a game scheduled in town, the miner can usually be found watching the sport.





Sunday also is a great day for visiting. The miner and his family go for long walks or pay social calls upon relatives and friends.

On Sundays, and on other days when the mine is idle, the fog and smoke may lift from the valley. When the sun is shining and there is money to pay for food and shelter and clothing, the snow on the hillsides in the wintertime, and the green trees and grass in the summertime, seem overwhelming in their beauty. At such times the miner and his family feel a measure of contentment.

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